The Builder.

VOL. XLVI. No. 2147. SATURDAY, MARCH 15, 1884.

ILLUSTRATIONS.

Design for a Theological College (Soane Medallion Prize).—By Mr. J. O. Harris, Architect 376, 377
Competition for the Monument to Victor Emanuel at Rome.—Design by Signor Luigi Boffi 379
Details of Cloisters of the Abbey Church of S. Emmeram, Ratisbon 381
Market Hall, Burton-on-Trent (Plan, 370).—Messrs. Dixon & Moxon, Architects 383

CONTENTS.

Architectural Draughtsmanship 359
Notes on the Mortar of Enduring Building 360
Some Architectural Drawings in the Louvre 361
Notes 362
The Architecture of English Fiction 363
St. Helen's Church, Bishopsgate 364
In the Mersey Tunnel 365
Mr. Poynter, R.A., on Egyptian Sculpture 366
The Pele-Towers of Northumberland 367
The Building of Town Houses: Fittings, Planned Furniture, and Constructive Decoration 368
Details of Cloisters at Ratisbon 368
New Market Hall, Burton-on-Trent 385
Design for the Victor Emanuel Monument, Rome 385
Design for a Theological College 385
Exhibition of the Royal Scottish Academy: the Architectural Drawings 385
A Proposed British Society of Textile Industry 385
The Arrangement of Buildings in Flats: Architectural Association 386
Architectural Association: Visit to the Brompton Oratory 386
Trades Technical Education: Artisans' Technical Association 387
Architects' Benevolent Society: Annual Meeting 388
Bristol Master Builders' Association 388
International Health Exhibition 388
International Machinery Exhibition, Vienna 388
Duties on Stoneware Pipes in France 388
Ashburnham House and Westminster School 389
Monumental Architecture at Hamburg 382
Sale of the Materials of Tothill Fields Prison 382
Westminster Abbey: Proposed "South Transept" 387
The British Museum 390
The Quarries of Caen 390
Mediæval Architects 390
Exhibition of Works in Wood 390
Victor Emanuel Monument Competition 390
Pipes v. Façades 390
Belgian Granite 390
Cost of Primary Schools 390
Provincial News 391
Church Building News 391
Stained Glass 391
Building Patent Record 391
Meetings 392
Miscellanea 392

*Architectural Draughtsmanship.**

WE cannot but look upon it as unfortunate that, at the moment when, for the first time, a combined effort is being made by the profession to remove the more glaring defects in our competitive system, a work should have appeared, from the pen of an architect, and addressed especially to the young and inexperienced, advocating the adoption of those expedients in design and draughtsmanship which are more than anything else calculated to perpetuate the worst faults of the system which calls for reform.

The avenues to our profession are broad and unimpeded, and are every year thronged with a more miscellaneous multitude. As the crowd increases and the struggle for professional existence becomes intensified and embittered, it is not to be expected that the niceties of professional etiquette will grow, and it behoves us to guard with jealous care any observed tendency to lower the *morale* of those engaged in the practice of our art. It is, in fact, felt that some deterioration has already shown itself. We look back regretfully upon a type of which but few examples now survive. The high breeding, the wide erudition, the punctilious sense of honour, the graceful courtesy, the kindly heart and open hand are not, it is true, wholly unrepresented in the ranks of the profession; but they are, it is feared, becoming increasingly scarce, and are threatened with almost total extinction before the press and crowd of candidates for public favour who are actuated by quite other principles and have far lower aims. It is necessary, therefore, that we look well to our safeguards against dangers both real and imminent. Under this view the book before us is a little discouraging. The author sees clearly and says truly, that in future "competitions will be the chief means by which the young architect must hope to gain the prizes of his profession." The time happily has not yet arrived when the builder of a dwelling-house seeks his architect in the open market and dangles his patronage as a prize before the eyes of the whole world. Family considerations and personal reputation play, and will continue to play, an important part in this direction, and long may they exert their wholesome influence. But public buildings of every kind are, year by year, more and more the aim and the reward of hitherto unrecognised ability. It is in some respects well that this should be the case. In no other profession, perhaps, are the highest rewards so completely within the reach of exceptional talent. The victories of Sir Charles Barry and Sir Gilbert Scott, of Burges, Street, and Waterhouse, were won in the open field, and the result has, on the whole, amply justified the means. Those architects triumphed by sheer force of genius over the vices of a corrupt system; and now we are said to be on the eve of a purification of the system itself.

In numerous recent instances great corporate bodies have evinced a real desire to keep these professional conflicts within reasonable conditions, and to award the prize with righteousness. The fact that the assistance of such competent and trustworthy advisers as Messrs. Ewan Christian, Barry, and Waterhouse, has been called in and acted upon, has reassured the whole profession, and benefited those who have adopted it by enlisting in their interest the best talent the profession affords.

It is, therefore, with a feeling of surprise and disappointment that we encounter such a sentence as the following in the chapter on Competition Drawing:—

"A more showy and brilliant style of colouring than strict good taste might warrant will often be found *needful;* effects striking and obvious aimed at; plain wall-surfaces obliterated; and *as much cheap ornamental detail as possible introduced.*"

These meretricious arts are not mentioned to be reprobated. "They are, up to a certain point, permissible," although we must not sacrifice "*too much* to the shrine of vulgarity and bad taste," and "*some* limit must be set to *pandering* to the ignorance of a building committee." Architects are, in short, exhorted to furnish what will catch the uninstructed fancy of incompetent self-constituted judges, and other considerations are thrown to the winds. The burden of the writer's song is simply this:—Work comes chiefly by competitions. Competitions are won by meretricious draughtsmanship. Therefore, so draw that you may obtain the prize.

We are glad to find that the writer's name is not decorated with those alphabetical additions which indicate a connexion with the Institute, for we do not hesitate to call his book, in one respect at least, a pernicious book, and are almost sorry to advertise it by this condemnation of its principles.

Apart from its questionable morality, there is not much to be learned from the writer's numerous hints. We doubt the accuracy of his statement that "much of the draughtsmanship that proceeds from even the better kind of London offices is *indescribably bad,*" and are disposed to think that such contemporary draughtsmanship is on the whole exceedingly good. It is a lack of practical knowledge, and not a want of the skill of the draughtsman, which leaves so many otherwise clever young men unemployed or imperfectly remunerated. But our standard is probably not the author's standard. He thinks highly of the French method of illustrating architectural publications, and observes that we have nothing in England to compare with them. That is, in a sense, true. But have the French anything to compare with the crisp, characteristic, accurate brilliancy of many of the companion illustrations in our professional periodicals? The author would impose upon all the fine-line manner of the civil engineer, and reduce the art of architectural draughtsmanship to the uniform and insipid perfection of the Continental school. There is a place for both. We can admire the *Charivari* without shutting our eyes to the excellence of *Punch*, and we think that originality is a higher quality than the closest possible conformity to a fixed academic type. And English work is, by the author's own admission, original, inasmuch as it differs essentially from the work of the rest of Europe.

The book is offered by the author as a compendium of "thoroughly practical suggestions." Let us take a sample.

An architect is supposed to have received instructions to prepare (presumably in competition with others) a set of plans for a public hall to seat about 2,000 people. And this is the advice given to him. "Although a plan of the site will probably have been sent with the instructions, it *may* still be necessary to visit the spot *and sketch* the *surroundings*" (with an eye, it will be noted, to the showy and brilliant perspective, and not in order to adapt the dispositions of the structure to the *locus in quo*). "It *may* also be well to visit other buildings of the like kind." It may certainly, and such a course would probably suggest itself to the merest tyro. The preliminary tentative plans should be "done in *pencil only*" (as though any one in his senses would waste his time in inking them in) an the finished plan should be completed, commencing with the basement and working upwards,—a "practical suggestion" which will not be endorsed by the practical architect.

It is a relief to find ourselves in accord with the writer in anything, and we cordially agree with him as to the desirability of acquiring a mastery over freehand drawing, although we do not approve of his method of procedure. There are a few obscurities

* "Hints on Architectural Draughtsmanship." By G. W. Taxford Hallatt, Architect. London: E. & F. N. Spon.

about his work, such as the prophecy that a "return to the modern style of architecture will inevitably result in a return to the modern style of drawing," and a few inconsistencies, such as the recommendation of the use of "rapid strokes" on page 17, and a caution against "hasty strokes" on the next page but one. But these are slight blemishes. His numerous digressions on the advisability of using good drawing instruments and "unwarped" drawing-boards meet with our entire concurrence, and so does his recommendation to the learner to practise by the light of electricity rather than by that of gas,—when he can get it. The writer is sensible that here and there he "strays a little from the subject," but hopes that, on the whole, his observations are "made in an orderly and intelligible manner." This orderliness and intelligibility are, perhaps, matters of opinion. We have no desire to set up as censors of literary style, accordingly we say nothing on this head; but, as Sir Fretful Plagiary observes, this we *will* say, that the inveterate discursiveness of the author does sometimes remind us of the widow Nickleby. The hints given can be of no use to any but the most uninstructed of students. The opinions advanced are, in many instances, at variance with general experience; the morality of the book is, at least, equivocal, and we do not therefore wish it the conventional "wide circulation."

A word to the young practitioner into whose hands the book may fall. He should remember that the most eminent architects of recent times have been the most accomplished draughtsmen, from Sir Charles Barry to Mr. Norman Shaw, but their drawings were only a means to an end. Their fame rests upon their works. In order that he may design like them it is desirable that he should learn to draw like them. He should also bear in mind that their most successful efforts were *not* directed to catch the vulgar praise of the uninitiated, but were approved by educated judges. He should look ahead and discern the signs of the times, one of which certainly is that in the near future the contests he may enter upon will be more frequently than in the past decided by professional judges, and that the highest prizes will fall to the most skilful designs and not to the most showy drawings, however much the wall surfaces are "obliterated" and despite the introduction of any quantity of "cheap ornamental detail."

NOTES ON THE MORTAR OF ENDURING BUILDING.

THERE have been various conjectures as to the date of the first use of mortar in the British Islands, as also with respect to the constituents of the materials used by the Greeks and Romans, and other nations of antiquity. Our oldest class of prehistoric structures, including Cashel or stone-built forts, clochans, or beehive-shaped erections, forts, and raths, are all of dry-wall masonry; but many of them exhibit good fitting and bonding, though no cementing material was used in their construction. The Rath-chambers appear to be the oldest specimens of stone-built work in the British isles, the character of the work, of course, differing with the locality and the material obtainable. An examination of the most representative of this kind of buildings shows that no mortar nor any substitute for it had been used. The walls in some instances are built of surface stones and boulders, with the interstices packed with spawls; in other cases flat longitudinal stones are carefully placed together, and again, large blocks of all sizes and shapes are found well fitted in their natural forms. Indeed, there are examples of this class of building presenting masonry work of excellent character, well bonded and fitted, and showing to some extent an appearance of squaring and dressing. Our early Christian edifices existing show that mortar of very good quality was used in their erection, but even some of these buildings have uncemented walls. One thing is clear: whether the early Gaelic and British masons were skilled in the use of mortar or other cementing materials or not, they were certainly skilled in an art more difficult, that of preparing and fitting the stone. Although there are none of those Celtic structures known as Round Towers in England, they are plentiful in Ireland, and two examples exist in the North of Scotland. If these buildings, which have given rise to such a voluminous mass of controversy, are of Pagan origin, as many able archæologists and architects have contended with good reason, then the use of mortar must have been long centuries known in these islands before the introduction of Christianity. It is assumed by some writers on the Christian origin and uses of the Round Towers, that mortar or lime cement only dates in Ireland from the time of St. Patrick's mission. Now, it is a fact that the Romans used cements several centuries before Christ; and though the Roman legions never set foot upon the soil of Ireland, they carried their building knowledge into all their colonies, including Britain. The early Britons and the early Celts in Pagan times, as well as later, had constant intercourse with France and Spain, and other Continental nations, as the pages of Tacitus will testify. Although mortar or lime cements may have been used sparingly in remote times, nevertheless, we have good evidence of its high antiquity. The walls of the Acropolis of Pharsalia, and at other places, exhibit an unusual thickness, and are lined on both sides with large blocks, yet the interstices are filled up with small stones, and with earth or mortar. Again, the walls of Methana are constructed with a compact mass of small stone, with mortar, tiles, and earth between casings of regular masonry. The Greeks, in their art of building, cultivated the faculty of joining their large stones in such a skilful manner that they seem for a long time to have discarded the use of mortar as a binding cement. Whenever they did use it, they appear to have used it very thinly or sparingly. It became necessary for the Greeks in their massive and matchless buildings to make very close joints, and they often brought the surfaces of their stone so close that the points of union were not observable except on keen inspection.* Stones or lengths of masonry were often fixed together by means of oaken dowels, pegs, or bolts, or by cramp-irons let in or dovetailed. In the Coliseum at Rome, and in the Amphitheatre at Verona, cramp-irons were used to hold the free-stone firmly, but no mortar. One architectural authority is of opinion that it is possible that mortar might have been used "of a nature sufficiently fine and subtle to blend and assimilate itself in course of time to the masses of which it formed the cement." The Roman method of making ordinary building mortar did not differ much from the modern British method in use among the old school of respectable builders. The sand the Roman builders used was of different colours and qualities, and from the quarries or pits they excavated three sorts, black, white, and red; the latter seems to have been preferred. Though the Romans, as we have said, used a cementing material long centuries previously to the Christian era, the regular use of lime-mortar is of later introduction. The burning of stone into lime, according to some authorities, does not appear to have been brought into use until about three centuries before the Christian era. The sun-dried bricks used in the building of the Tower of Babel are stated to have been cemented with bitumen or pitch, and this and other material was used in different countries for centuries subsequently. When lime-mortar had been used for a while, builders soon recognised its advantages, and they often employed it in profusion. The Romans used it in plentiful quantity in the body of their walls, the lime being generally burned on the spot, and used fresh before cooling and crystallisation set in. Of course, when lime-mortar became well known among the Roman builders, they used it in all kinds of masonry and brickwork. Some of their rough stone or rubble walls were, in fact, a species of concrete construction through the ample use made of the mortar they employed. The Romans as well as the Greeks used wooden wedges, dowels, and clamps of metal work in portions of their masonry, as well as mortar. The Roman brickwork of the first century appears superior to that of a later period, the bricks being of large size, flat, and thin, usually 2 ft. square, and 1 in. thick; in fact, what may be termed tiles, though used for wall building, and not only for paving or roofing. After a time the bricks were made of diminished size, but thicker, and continued to decrease down to the fourth century, when they counted only four to a foot in the surface of the wall, as in our modern brickwork.

In the British Islands, although the burning of lime and the use of mortar were known at an early date, the craft of the bricklayer was of late introduction. The Mediæval masons were particular as to the quality of the mortar they used in their best work. The buildings of the eleventh century in England and France are often massive, the stones large, and the mortar-joints wide; but later on, excellent masonry exhibiting thin joints became more characteristic of the work of the Middle Ages. Whether, however, our British masons elected to build with wide joints or with close ones, they did not neglect to use good mortar. In important or particular work, it is known that the Mediæval masons used an admixture of skimmed milk in the preparation of their mortar. Few instances of English brickwork occur previously to the fourteenth century, and the scant specimens found before that period may be put down to the using up of old material left by the Romans. In the fifteenth century and onwards, English brickwork became common, and in the sixteenth and seventeenth century fine specimens of ornamental work in brick material were numerous. The mortar employed in this brickwork was generally of the best description.

George Semple, an architect in practice before the middle of the eighteenth century, and who towards its close published a treatise on "Building in Water," was one of the first, if not the very first, of our modern architects to suggest, and carry out, foundations by concretion. Semple came of a generation of builders, his father being a building workman in 1675. George Semple's own practice extended over a period of sixty years. Speaking apart from hydraulic mortars, or those kinds specially made for setting under water, Semple said, "I can safely affirm, that good mortar,—that is, mortar made of pure and well-burned limestone, and properly made up with sharp, clean sand, free from any sort of earth, loam, or mud,—will, within some considerable time, actually petrify, and, as it were, turn to the consistence of stone." And, no doubt, it will under favourable circumstances, though for expeditious building under water and quick setting, the employment of mortar made of hydraulic lime is indispensable. The practice of the older masons in the British Islands employed in the building of churches, castles, and other large structures appears to have been to this effect. After they laid the outside course with large stones in swimming-beds of mortar, they hearted their walls with spawls and smaller stones, and into this body of their work they poured a quantity of boiling or hot lime, liquid, and mixed, of course, with sand. This grouting process was supposed to lead to the incorporation of the mass of small stones together. It was believed that the heat exhausted the moisture of the outside mortar, and united firmly both it and the stones. We have ourselves examined the mortar in several old castles, and the walls of ecclesiastical structures, and we certainly found that a process similar to that we have described must have been more or less followed by our masons, as the mortar and small interior stonework was in a compact or concrete mass, and the former proved harder to break than the stones. Good ordinary building-mortar is composed of one part of lime to three parts of sand, the water being added gradually in such quantities as the tenacity of the mortar requires, and this will be generally obtained when about a third of the bulk of the material has been added: clean river sand, sharp or angular in the

* See Mr. Parrose's work on the Parthenon for a description of the manner in which the close-fitting joints of the drums of the columns were probably worked.

grit, is the best; and when pit sand is used it should be well washed to free it from loam. Sea sand should of course not be used in domestic dwellings, though it often is. It will do very well for outbuildings. If builders or workmen could be depended upon generally to give sea sand repeated washings in pure fresh water, thoroughly expose it to the weather and sun, and subject it to constant turnings, there would be less risk in using it. But as this care is not to be generally expected it is better to discard sea sand in favour of well-washed pit sand. When sea sand is used, on account of the saline matter in it an efflorescence on the walls within and without the building is certain soon to manifest itself. When such sand is both used in the mortar and plaster work, dry rot will often make its appearance, to the destruction of the flooring and joinery work.

Though a mixture of clay in all sands is pernicious, it is otherwise a valuable ingredient in limestones, as the burning converts it into a useful agent. In sand, however, the clay causes the destruction of the mortar in a few years. Apart from the hydraulic kinds, lime is divided into two general classes, called rich and poor, according to their constituents. The former, or rich limes, contain little silicate of lime in proportion to pure carbonate of lime, being composed of one part of the former to nineteen parts of the latter. They are termed rich because the stones from which they are procured imbibe a large quantity of water when slaked, thus increasing to a great extent in bulk and weight. The mortar of the rich limes rarely becomes thoroughly hard, but it is useful for inside plastering and other purposes. The poor limes, produced, for example, from oolitic limestones, contain a large percentage of metallic oxides, and insoluble flinty grit. They are called poor because they do not increase in volume to any extent after being slaked. In this respect they are somewhat similar to hydraulic limes, but differing from them in not possessing the property of setting or rapidly hardening under water. Perhaps not one person in a thousand of makers or users of mortar knows what causes its induration or hardening; but though we cannot yet expect building labourers to know the chemical changes that lime and mortar undergo in their preparation, yet our builders generally ought to know a little more about the subject as a body than they appear to do. The hardening of mortar is partly caused by its absorption of carbonic acid gas from the atmosphere, but chiefly to the combination of part of the water with the lime. A good strong building mortar can be made with three parts of fine sand, four of coarse, and one of quicklime freshly slaked. Another excellent and enduring building mortar can be made with three parts of fine sand, cement of well-baked bricks three parts, and slaked and unslaked lime, each two parts. Water ought to be used sparingly in slaking lime and making mortar; but where it is made by the hand, free from inspection, the labourer, to save himself trouble and brow-sweat in mixing, adds a large quantity of water, and thus the mortar is "perished," or spoiled. In summer, or hot, dry weather, both stones and bricks should be well soaked with water before they are used, as the mortar unites better, and takes a more firm hold. Before pug or mortar-mixing machines or mills were introduced, the old class of respectable builders insisted upon careful mixing, and no stint of what they termed "elbow-grease" on the part of the labourers. Formerly the men used wooden beaters, but though mortar is still extensively made by the hand, yet in all large works the pugging-mill may now be seen in operation. Many ingredients were formerly, and some are still, used for increasing the tenacity and hardness of mortar. Burned bones have been found to improve mortar, by giving it a greater tenacity, but the addition should not exceed one-fourth of the lime. A blue mortar for special purposes is made in London by the admixture of ashes and iron dust of a smith's forge, which is often used for covering such parts of a building as are much exposed to the weather. Again, certain qualities of fairly good mortar are made up of ground bricks, burned clay (termed ballast), and the slag from glass and iron furnaces reduced to fine powder by machinery. Here, however, we are trenching upon the subject of cements and special kinds of mortar, apart from the strictly building kinds. Chalk lime slakes very freely, but it possesses much less strength than stone lime in mortar, being much better suited for plastering purposes than for building. As filtered water is good for drinking, so is it for mortar-making, but filtered rain is the best kind of soft water, and next comes that which can be found free from mineral agents. As hot water has been mentioned in writings of antiquity, it has been recommended by some individuals in modern times, but we do not see wherein its special value lies. Few words need be wasted in describing the rubbish called mortar used so extensively of late years by the lower class of speculative builders. This class of operators press almost anything in the shape of clay, vegetable mould, cinder ashes, and road scrapings, into their service. What they call "ballast" is not burned clay, but a libel upon the name; for burned clay well ground makes a fairly good substitute for sand in mortar-making, with the addition of a proper quantity of lime.

We must stop here, though we may furnish a sequel on another occasion, in further illustration of the mortar of enduring building.

SOME ARCHITECTURAL DRAWINGS IN THE LOUVRE.

WHATEVER less evident influences may have been worked by the effects of the searching character of modern criticism in matters artistic, it is impossible to deny that to its efforts one result can be directly traced,—the directing authorities of our great public collection have been urged to carry out reforms of a nature which have long been clamoured for in vain. The necessity for methodical classification has at last been recognised, and of late years the advance made in this direction, slow as it may have been, is none the less worthy of grateful recognition, considering the grudging manner in which funds and space, those two absolute necessities, are granted by the State. There remain, however, within the power of our museum authorities certain improvements, which it may be remarked do not need in quite such an imperious manner the two requisites of space and means; what is required is rather a little of that simple classification which is found so absolutely necessary in the conduct of any business, and of which, as has been again and again pointed out, the order of Nature itself,—the Cosmos of the classics,—stands forward as the most striking example. With the treasures now in our possession there will remain little other work for the near future but the methodical classification of these possessions with a view to a proper use being made of them as a means of instruction.

Probably in few directions less than in that of a classification of the drawings of the Old Masters has any advance been made of late years. The traditions of a vanished past still affect our museum authorities in respect to the mode in which they display the drawings in their charge. As for the British Museum, want of space, it is true, has been the chief obstacle, an obstacle which still exists, in spite of the removal of the Natural History collections to South Kensington, and so for a period the collections we suppose must remain locked up in the morocco-bound portfolios of the Print-room.

In the case of the Louvre there is certainly, thanks to the size of the old palace, a more adequate display of the collection of drawings, though it is reported to consist of no less than 35,000 separate "pieces." Among the many specimens framed,—and more recently displayed in the turning cases with which the South Kensington Museum first, if we mistake not, made the world acquainted, it can be understood that not a few are essentially architectural, and the interest of these few leads to a regret that a more adequate display should not be made. As it is, a very large number of questionable works occupy, owing to the influence of old traditions, valuable space, which might be better employed.

Such a drawing as that which meets the eye only a moment after ascending the historic staircase of the Louvre, and entering on the left the first room of the wing devoted to the *Dessins*, a drawing attributed to Ghiberti, amply serves to show how interesting a collection might be gathered were some classification followed. The drawing, judging by a MS. note, is the design for a niche in Or San Michele, the niche containing the statue of St. Stephen erected by the once important wool-staple of the busy Tuscan capital which, in those and still earlier days, traded so largely with our distant shores. Almost by the side of this drawing, a study by Taddeo Gaddi offers a characteristic example of the happy union between the sister arts, for though the work is clearly intended as the study for some mystic picture, the importance of the architectural design of the temple represented will instantly appeal to the professional eye as showing in its delicate colour, its Gothic tracery, and especially its inlaid marbles, a design of the period to which we owe the creation of Santa Maria del Fiore. To a later, but no less interesting, period belongs the study of a sixteenth-century tomb by Bambaja, a good specimen of work such as our South Kensington Museum has rendered familiar even to those who have not enjoyed the privilege of crossing the Alps.

In the more recently-introduced turning-cases the architect will find a larger field of study than in the older collection framed on the wall. Here one lights upon a large number of drawings by that active Italian artist, Primaticcio,—clearly studies for the decoration of the palace of Fontainebleau, to adorn which he was, it may be remembered, called to France in company with a number of his artistic brethren. Frescoes, ceilings, designs for chimneypieces, and a mass of decorative motives generally from his fertile pen, will be found; sketches which were mostly carried out by Nicolo dell' Abbate, by whom several works will be found in the cases. It would be difficult to imagine a more interesting architectural drawing than that by Holbein, the design for the façade of a house decorated with frescoes, as was the wont in the Renaissance, a custom taken from Italy, where to this day in the less frequented towns of the Venetian *terra firma* still exist numbers of examples of a branch of art which so successfully combines the skill of the painter and the architect, and which, within a few years, has been most brilliantly revived in Munich. As entering into the same category should be mentioned the large number of studies by that delightful historian of Italian art, Vasari, chiefly designs for ceilings,—one important example clearly for the ceiling of the Palazzo Vecchio at Florence. A considerable number of sketches by the industrious Perino del Vaga will be found, one more than usually interesting, representing the façade of an Italian palace of the *cinque cento*, with its generous *portone*, the origin of the French *porte cochère*, surmounted by a boldly-designed shield, bearing the arms of the owner,—an instance of the happy architectural use made in the past of the decorative qualities of heraldry, the traditions of which seem to have entirely disappeared from our modern professional training. More than one detail of windows in the Renaissance style, by Bernardino Poccetti, deserve mention, contrasting curiously as they do with the cold severity of the famous Sienese architect, Baldassare Peruzzi, by whom a valuable study of a portico will be examined with interest by students of the Renaissance.

As belonging to the same period a number of studies of *grottesche* by Giovanni da Udine, the assistant of Raffaelle, it may be remembered, in the decoration of the Loggia at the Vatican, should not be overlooked, but of far greater architectural interest is the superb drawing said to be by Vasari,—on what authority it is difficult to say,—of the ground-floor of a graceful Renaissance building in a Sansovinesque style, strikingly recalling the Libreria at

Venice. Above this design the sheet of studies of quaint Renaissance capitals is also interesting. Of the same active period of the Renaissance, but at a very different and later moment of its development, the study of Alonzo Cano offers a contrast to the sobriety and graceful purity of the study attributed to Vasari. In one feature, however, the work is characteristic, the power of draughtsmanship exhibited, the complete knowledge of the human figure on the part of the artist and the ease with which he exercises his imagination, qualities which in their exuberant exaggeration stand in marked contrast to a design not far off, of a niche attributed to that delicate Florentine artist Nino da Fiesole; the design, attributed to Bramante, of a church of the basilica form, so much affected in the Renaissance period, is curious, but little else.

Far more interesting are the two superb studies by Galli da Bibiena of the interior of a theatre, one showing the design of the central royal box, a disposition still retained at the Munich Hof-Opera; the second, the design of the proscenium. Tinged with "rococo" as these are, it will be found they are none the less pervaded by that subtle quality of "style," not very much developed in modern theatrical architecture. To more than mention the number of decorative and architectural designs by Romanelli and a host of other artists of the industrious Italian school of the sixteenth century would carry as far beyond the limits at our disposal.

It is curious to see the vivid imagination and power of the Italian school which gave it so justly a reputation and ample employment in every portion of Europe, slowly and surely inspiring the newer French school, which in Lebrun and the splendours of the court of the Grand Monarque, is not inadequately represented here, though we feel certain that a very much more interesting gathering might be made from the portfolios not accessible to the public. In the rooms devoted to the pastels and chalk drawings will be found another series of turning-cases which contain almost all the architectural drawings exhibited. Here Lebrun, the great art director of the period of Louis XIV., reigns supreme; architectural designs of façades, of interiors, of triumphal arches, of fountains, frescoes, and what not, formed from his busy hand and busier workshop, for in him Louis XIV. found precisely the artist in whom was incarnated the spirit of pompous magnificence which presided over the erection and decoration of Versailles. Amidst the many drawings belonging to this period none, however, is more interesting than the design attributed to Boule, the master-cabinet maker. The piece of furniture is the design for just such another *armoire* as that sold at the Hamilton sale for 11,500 guineas, and which, curious to say, was formerly in the Louvre, a marvel of inlaid ebony and brass, of pewter and tortoiseshell, of ormolu mouldings and *mascarono*. The design by Bernard Picart of a coach of the same period cannot fail to interest the English visitor as reminding him of a familiar feature of a threatened institution, the state coach of the Lord Mayor.

As an architectural drawing of great artistic merit the charming view of the Palais Royal in 1785, by L'Espinasse, is certainly worthy of a better fate than interment in a turning-case. To a very different period belong the several delicate designs by Etienne Delaulne, the French silversmith of the Renaissance, by the side of which takes well its place the superb-coloured architectural study for a fresco-decorated ceiling by Toussaint Dubreuil, of the refined period of Henri Deux. Among the more recent acquisitions in the collection bequeathed by M. Gatteaux, an interesting sketch by Filippo Liano, "Il Napolitano," representing the mechanism for raising a heavy column, is noteworthy; but the chief architectural feature of this portion of the collection is, unquestionably, the masterly (anonymous) design of the interior of an amphitheatre in the Renaissance style of Sansovino. It would be difficult to imagine a more perfect specimen, not only of design but of draughtsmanship, and should the drawings of this portion of the Louvre be reproduced, we would earnestly counsel that this beautiful study be among the first published.

The observant eye of the visitor may, doubtless, in a walk through the galleries, detect some few others than those specimens of which we have spoken, but our notes will, we hope, suffice to show the interest, from a professional point of view, of a portion of the museum of the Louvre not sufficiently known to the casual foreign visitor to the famous palace of art on the banks of the Seine.

NOTES.

IT is common to speak of the present condition of things in London as though it were something unknown in the past, and due solely to the negligence of the present generation; yet, if it be right at all to term overcrowding a disease, it is a disease of long standing. Aggravated though it may be by circumstances in these days, there never was a time within the last 400 years when it was not to be found in London, and when it did not meet with more or less attention. Statute after statute was passed, dealing with it, and especially during the reign of Queen Elizabeth do we find the Lords of the Council urging upon the Lord Mayor the duty of putting the law into execution. In 1583 the Lord Treasurer, — who was none other than Lord Burleigh, ancestor of the Marquis of Salisbury,—tells the Court of Aldermen that the number of new buildings in and about the City was excessive, "to the danger of pestilence and riot," and that they must at once proceed against such as had transgressed the Queen's Proclamation either by erecting houses or by dividing single tenements, and bring them before the Star Chamber. Ten years later (1593) the Lord Mayor is again bidden to prevent the erecting and overcrowding of small tenements within the City, and the deputies of each ward are ordered to make search, and in cases of overcrowding remove the inmates, "according to the statute." That statute (35 Eliz. c. 6) expressly declares that "great mischiefs daily grow and increase by reason of pestering the houses with divers families, harbouring of inmates, and converting great houses into several tenements, and the erecting of new buildings in London and Westminster."

BUT nothing shows more clearly the impotence of law than the continuance of the evil against which law after law was directed. When, as in 1625, pestilence raged throughout the land, and showed itself most severely in crowded cities, a "bitter cry" against the perils of overcrowding went up, and greater care was for awhile bestowed upon enforcing the law. But the policy of *laissez faire* quickly reasserted itself, and in 1632 it was the Corporation's turn to appeal to the Lords of the Council for protection against the dangers with which suburban overcrowding was then threatening them. "The newly-erected tenements in Westminster, the Strand, Covent Garden, Holborn, St. Giles's, Wapping, Ratcliff, Limehouse, Southwark, and other places had brought great numbers of people from other parts, especially of the poorer sort, and was a great cause of beggars and other loose persons swarming about the City, who were harboured in those out-places." The prices of food were enhanced by the growth of population, the sewage was dangerously increased, and, if any pestilence were to break out, the City would suffer terribly, from being environed by such reckless folk." A special committee, consisting of the Chancellor of the Exchequer and two Secretaries of State, was appointed to advise with the Commissioners for Buildings, and report to the Council, and the result seems to have been the issue of a new and more stringent Proclamation on the subject. Power was given to the Lord Mayor and Sheriffs of the City and to the Justices of the Peace to enforce the orders for demolishing all new buildings erected within the City or suburbs contrary to the King's Proclamation, and the Order in Council directed the above authorities "to stay the erection of certain buildings by the Earl of Bedford in a passage or alley leading from Covent-garden to St. Martin's-lane." It is clear from this order that something definite was intended, and that even the great landlords were not beyond the scope and power of the law. Still, the evil seems to have outrun the controlling operations of the Legislature, and as late as 1661 the Lord Mayor was again called upon to put in force the same Proclamation for restraining the exorbitant growth of new buildings in and about the City, and for regulating the manner of all new buildings. The former provision was effectively carried out by the Great Fire of 1666, which for awhile rendered further legislation unnecessary.

THE shelving of the Metropolis Water Bill on Tuesday night was obviously due more to a feeling that the promoters of the Bill had gone the wrong way to work than to any reluctance on the part of the Legislature to see the subject taken in hand in a systematic manner. The fact that the two principal opposers of the Bill were Members particularly interested in Water Companies in itself speaks volumes as to the degree of public spirit involved in the discussion. The promoters of the Bill, on the other hand, gave excuse for an accusation of "confiscation" being raised against them, the grounds for which charge may be found set forth in a delightfully one-sided pamphlet entitled "Can Parliament break Faith?" representing a conversation carried on between a representative and an opponent of the Water Companies, in which, of course, the former has it all his own way, and the latter has not a word to say. The Water Companies, however, need not flatter themselves that the question is settled; it is only postponed. The subject of supply by meter has been rather misrepresented. So long as this is optional, the cry about the two millions that will have to be spent on meters has little force; nor is there, to our thinking, much more force in the argument that meter supply would lead to an unsanitary reserve in the use of water, except on the part of those who are indifferent to water on any system of supply. On the other hand, some such check on waste as a meter supply would involve may be found, at no distant date, to be almost necessary.

THE Parks Railway and Parliament-street Improvement Bill passed its second reading on the same evening, and was referred to a Committee, which, we hope, will include those who have both the knowledge and impartiality necessary to deal with the subject. In spite of the decisive and repeated assurances of the First Commissioner, given, we have no doubt, in good faith, there seems every reason to believe that the proposed railway will spoil the Parks to some extent, as it does not appear to be denied that cuttings will be required in part of the route, unless the tunnel be sunk to an inconvenient depth. On the other hand, there is the unquestionable fact that a cross railway route will be a great convenience to many, more especially if it be connected with the existing Metropolitan and District lines, an important factor in its usefulness which must not be overlooked, and about which Mr. Labouchere was to move a resolution on Friday evening. This will, in fact, make such an immense difference in the utility of the line that we should be disposed to say that the scheme should stand or fall on that point. An amusing feature in the debate was the posing of Sir E. Watkin as a friend of the working classes, desirous chiefly to find labour for them, and anxious about the railway solely on philanthropic grounds.

IN relation to the subject of tapestry, Prince Leopold has addressed a circular-letter to the Mayors of the principal towns in England and Scotland, calling attention to the possibility, by means of the facilities afforded at the Windsor Tapestry Works, of reviving the art of tapestry in this country, and also of repairing in the same style and without incongruity the specimens of ancient tapestries, many of which are in a state of decay. The latter would be perhaps the more difficult task of the two. The revival of tapestry is, no

doubt, as a method of decorative art, a matter of much interest; but we do hope that if anything is attempted on a large scale in this direction, the mistake will not be made of imitating the misapplication of tapestry, in many old examples, to such subjects as realistic landscapes and groups of figures. The material will not bear such treatment, more especially not landscape, which becomes at once vulgarised in tapestry; of which fact we noticed some melancholy examples in a recent exhibition in Bond-street. A purely conventionalised and decorative treatment is what tapestry really is fitted for. Otherwise used, it becomes like the art of a childlike taste, which much of the old tapestry really was.

THE two following quotations, in reference to the treatment of Hyde Park Corner, speak for themselves :—

Builder, June 23, 1883.

"One capability of the site [Hyde Park Corner] as laid out, we may point out, though it is one that is obviously purely accidental, and is traceable to no forethought or consideration in laying out the plan. It will be found that if the centre line of Constitution-hill be produced to the plot of ground opposite the Hospital, it will there meet a centre line produced from the middle entrance of Hyde Park-gate, at right angles to Piccadilly, and that the two lines will meet in the centre of the plot opposite the Hospital. There is thus, at least, a possibility, by good luck, of giving some point to the site by placing a central object, either a large fountain or a memorial trophy of some kind, in such a position that it will be seen centrally through the arch on coming up Constitution-hill, and will also be seen centrally from the park through the centre arch of the screen."

Pall Mall Gazette, March 7, 1884.

"The meetings of the Committee over which the Prince of Wales presides, and which is charged with the consideration of the adornment of Wellington-place, go on, we are glad to hear, with complete harmony, notwithstanding that the discussion turns mainly on questions of taste. The present idea seems to be to place the new equestrian statue of the Duke, for the execution of which Mr. Boehm will probably be selected, at a point near the centre of the Place, where a prolongation of the road from Buckingham Palace would intersect a line drawn at a right angle from the middle of the roadway of Decimus Burton's arch."

It might have been better taste for those who appropriate our ideas to acknowledge the fact; but what is of more consequence is that they should know how to appropriate them. It surely seems a matter of ordinary common sense that an object which is to be placed at the meeting of two lines of sight at an obtuse angle, should be one which should "front all round," so to speak, such as a fountain or a trophy; but the men of Gotham who manage these things in London forthwith propose to place at such a point an equestrian statue, which can front only one way, and must be oblique to the other line of sight! As an indication of the further possibilities in store for us, it is mentioned that "an eminent architect" (we should like to have that eminent architect's name) has suggested that "instead of the quadriga designed by Burton, the structure should be surmounted by the royal arms in stone flanked by two sphinxes." "Bless thee, Bottom!"

THE Institute Committee on Competitions, of which Mr. Cole A. Adams and Mr. Aston Webb are the honorary secretaries, although for some time silent, has not been idle, as the appeal, which most architects practising in the United Kingdom will by this time have received,* will show. The proposal of the committee is that every British architect shall engage not to enter upon a *public* competition, unless the promoters of it give an assurance that the award shall be made upon the advice of a professional architect, of established reputation. Surely nothing can be more reasonable, for not only would the public and the profession be the gainers, but the instigators of competitions would themselves be relieved of the suspicions which now,—and sometimes perhaps unjustly,—attend their preferences. So large a majority of architects are in favour of the principle advocated, as to constitute practical unanimity on the point, and it is to be hoped that the list of architects supporting the proposition will be as long and comprehensive as the most ardent advocate of a much-needed reform could desire. It will ease some minds to note that private or limited competitions are not included in the proposal, which it is proposed should come into operation after the middle of the present year.

* We are asked to state that the Hon. Secretaries of the Competitions-Memorial Committee above named, have sent a copy of their circular to every architect in the United Kingdom, as far as they could ascertain; but if any member of the profession has not received it, they will be very glad to send to any one who may write to Mr. Cole Adams, 14, Holden-terrace, Grosvenor-gardens, S.W.

A WELL-KNOWN member of the profession draws our attention to the conditions for the New Borough Asylum (Derby) competition, about which there has already been some correspondence in our columns. It appears that in reference to the employment of the architect whose plans may be adopted the stipulation is inserted, "The rate of commission to be stated." It need hardly be observed that to put any body of professional men in the position of costermongers, who can be haggled with for their prices, is a most disrespectful attitude to assume, and one which the members of any liberal profession would highly resent. Imagine asking a selection of barristers to state their fees, with a view of engaging the cheapest. What wigs would there be on the green! But the committee who make this request are not, perhaps, alive to the possible consequences to their own interests. An architect who would agree to carry out the building for a commission lower than that recognised by the heads of the profession would very likely be capable of entering into other agreements of which his clients would know nothing, but for which they would pay, nevertheless.

THE Society of Lady Artists opened their annual exhibition at 53, Great Marlborough-street, this week, the collection numbering more than 750 drawings and oil-paintings. The exhibition has thus considerably enlarged its borders since it started, and has not fallen off in quality; at the same time we feel some doubt as to the *raison d'être* of such an exhibition at all. Why do lady artists desire to have a collection of works apart from those of the other sex? Is it that they wish to be judged by a special and more indulgent standard of criticism? We should hardly think so; at least, that is not the prevalent tendency of feminine feeling just now. Do they wish to show how superior is their work to that of men? Probably those of them who can do best would be furthest from making such a claim. But our conclusion is, that the best works here would have equal claim to a place in a mixed exhibition, and those which would not are hardly worth exhibiting. Among the best contributors are Mrs. Naftel, Miss Hilda Montalba, Mrs. Marrable, Miss Moultrie, and Miss Wratislaw, who sends a good architectural interior. We observed that no sculpture of any kind was exhibited. There are some very clever modellers among the ladies; we presume they have their own reasons for keeping aloof.

WE record with great regret the death, at the early age of 37, of a lady who was indeed an eminent artist—the most eminent in her own walk—Mrs. Angell, whose exquisite paintings of flowers and still life may be said to have elevated subjects secondary in themselves to a much higher level of interest than is commonly accorded to them. Artists, indeed, love still-life work, as affording one of the best and most thorough means of acquiring and exhibiting artistic training; but to the majority of exhibition-goers they are passed over with little perception of the truly artistic power which may be displayed in such subjects. Mrs. Angell's work was to some extent an exception in this respect; it compelled attention even from those who were possessed of but little critical insight, though, perhaps only artists fully appreciated her powers. We have often, in noticing the exhibitions of the Royal Society of Painters in Water Colours, commented in terms of admiration on her beautiful and powerful works, which were usually among the finest pieces of drawing and colouring in the collection, and in the case of flower pieces rose fully to the poetry of the subject.

MR. STORY-MASKELYNE'S motion for a Select Committee "to inquire into the operation of the Acts for the Preservation of the Thames, and the steps which were necessary to secure the enjoyment of the river as a place of recreation," was agreed to on Tuesday night, and by no means too soon. It is all very well for riparian owners to write highly-coloured letters to the papers about the nuisance caused to them by roughs who have landed on their lawns from the river; but why is an owner on that ground to stop the access, say to a beautiful backwater adjoining his grounds, sometimes by the expedient of straining a concealed wire across it, an operation which might lead to fatal accidents? Let him fence his own bank, as he would fence all other boundaries of his property, if he wishes to keep "roughs" off it, and not selfishly demand that the Thames should be regarded only as the ditch bounding his property. We hope the Committee also will give some consideration to the disfiguring of the Thames by such monstrosities as the gridiron at the head of weir above Hurley, and other threatened erections in the way of hideous iron bridges at various points. We have a beautiful river, which some people seem only to wish to spoil, and it is time that its preservation should be systematically taken in hand.

IT appears that the inventive genius to whom we owe the development of that æsthetic home, Bedford Park, has formed a scheme to promote building on a site adjoining Whitehall-yard, behind the public gardens on the Embankment, and, according to a plan and description given in the *Pall Mall Gazette* of the 11th, to form a new street, to be called Whitehall Avenue, running from Whitehall-place (opposite the Hôtel Metropôle) to Whitehall-yard. The "Whitehall Court Company, Limited," has been formed to carry out the scheme, in which apparently will be included the building for the new Liberal Club. We have no doubt style in architecture will be considered; but we venture to suggest that solid building should also be regarded as a *sine quâ non*, and that no such gimcrack construction as that which characterises many Bedford Park houses should be tolerated.

THE ARCHITECTURE OF ENGLISH FICTION.*

IN resuming the occasional consideration of a subject which more immediate calls on our space have interrupted for a time, we may observe that, if we have had reason, in a former article, to complain of the neglect of architecture at the hands of the earliest novelists, no such charge can be laid at the door of their followers in the field of Romantic Fiction. Architecture is the very staple of their art,—its inspiration and the vehicle of the strangest part of their very strange stories. It was Walpole's dabbling in architecture, as he expressly tells us, which led him to excogitate that inconsequent farrago of absurdities which marks the renascence of the romantic school, and which he christened a "Gothic story." Mediæval architecture was to the eighteenth-century mind a thing of gloom, mystery, and superstition: the Gothic fane was the antithesis of the light-some grace of Classic temple,—the appropriate framework of the *bizarre* and the incredible. Whether the brilliant literary trifler, whose real character and motives are an insoluble enigma, was in earnest or in jest is a subject which has been discussed frequently and to no purpose. The balance of probability is on the side of the surmise that while he was thrilling our great grandmothers with horror he was laughing at them in his sleeve. The machinery of his story was the machinery of burlesque, and burlesque at its wildest pitch of extravagance. Preposterous helmets "a hundred times more large

* See vol. xlv., pp. 780, 848; and p. 54, *ante*.

than ever made for human being, and shaded with a proportionable quantity of black feathers" are endowed with volition, and crush and imprison unsuspecting and innocent victims. Pictures wink and nod at the astonished spectator, and step out of their frames to fright him with their unnatural antics; and marble statues are afflicted with the most unromantic weakness of a bleeding at the nose. Mr. Burnand, in his laxest moods, is not so shamelessly and wantonly grotesque. And all this was taken by our unsuspecting ancestors *au grand sérieux*, and the new manner was so successful that imitators sprang up on all sides from the brakes and bushes of literature like the warriors of Rhoderick Dhu. The architecture of this form of romance was unfortunately as unreal and pantomimic as the incidents with which it was associated. The basement of the Castle of Otranto was "hollowed into *cloisters*," approached by "stair*cases*," and its subterraneous vaults had trap-doors, opening with a lock and a spring, and always conveniently handy for the exigencies of the distressed heroine and the progress of the preposterous story.

The tragi-comedy is, moreover, enacted in a castle which must have been built in the eleventh century, and, strangest of all, Sir Walter Scott could describe this fanfarronade as abounding in "nice accuracy of delineation," which compared favourably with "the less successful efforts of later writers." Certainly, if the later writers were less successful, Walpole is entitled to the compliment; but their want of success would be described with "nicer accuracy" as utter failure. It is true that even Walpole's travestie was travestied by imitators who had infinitely less knowledge of Mediæval art than he: there is, in fact, no sillier page in the history of English fiction than that occupied by the authors of the romantic novel of the last century. Beckford's weird romance is a work of art which cannot be gauged by ordinary measure of its kind. It is perfect, and the first and last of its school. Its architecture is consistent and grand, but his castles are castles in the air and defy criticism. One writer must be excepted, in a measure, from the sweeping charge brought against the Romantic school. On the day of Walpole's death a child was born who was destined in after years to "hand on the sacred torch" of Romantic tomfoolery. Apart from their gratuitous mysteries,—mysteries which in the end resolve themselves into the simplest causes,—Mrs. Radcliffe's stories have more power and less of the impossible than the works of her great exemplar. Architecture is amongst the most important of all the "properties" in her melodramas. She was an adept in the description of natural scenery, and she knew it. On every page the broad landscapes of France and Italy are spread out before us. We are for ever invited to gaze on the wide expanse of peaceful valleys, or to contemplate mountains of preternatural height and gloom. The glories of the dawn and the saddening glow of the declining day meet us at every turn, until, as Mr. Puff says, the sun is never allowed to rise or set in peace. In every picture a convent will be found nodding on the craggy steep or nestling in its umbrageous clefts, and from every coign of vantage a fortress or a castle frowns in the most orthodox manner. We can forgive her *penchant* for landscape-painting because she does it well, and her pictures are all based at least upon outdoor studies. Not so her architecture. The exteriors of the terrible strongholds which are necessary to the development of her stories, though highly artistic and adapted to her aims, are scumbled over into a sort of mysterious indistinctness which is impressive in proportion to its lack of individuality. No writer has had in such full measure the art to suggest by a few strokes of the pen an effect which was strong enough to excite the imagination without satisfying it. The whole of her art was of this order. She deals in hints; mysterious noises alarm, and awful presences are *felt*, not *seen*, and we shudder we know not why. But this treatment will not answer for the interiors of the castles in which her scenes are laid. And in proportion to the precision with which she necessarily makes out her pictures, their impressiveness evaporates, and their unreality is apparent. It is simply impossible to make anything out of the plan of the buildings which she half describes. They have no plan, and we are the more sorry that the system of study which she adopted with her landscapes was not carried out by her in other matters. She adds galleries and chambers and cloisters *ad libitum*, and in a small mountain fortress multiplies her vistas of vaulted passages to infinity. A common hall is in one case divided by numerous rows of columns of "solid marble"; it is vaulted, and the upper part is "adorned with fretwork." The winds of heaven find an "easy entrance night and day," and damp and mildew disfigure its walls, but it is shut in nevertheless by "folding doors" (glazed also probably) which slam with the wind, and their melancholy noises echo down interminable lines of vaulted corridors, dying, dying. It may be said that this writer's works abound in "passages that lead to nothing." They certainly abound in passages which lead to dungeons, and dismal chambers without end and without object, and, whether ignorantly or of set purpose, the picture she uniformly presents to us of a Mediæval castle is of a structure of mystifying and unmeaning complexity. But if she is indefinite she is never absurd with the persistent absurdity of the feebler writers of the school. The French château was a favourite subject with her, but she gives us only glimpses of it between the embowering foliage. A gleam of white wall, a "lattice" provided for the convenience of the heroine who languishes thereat and escapes thereout,—a turret and a towering chimney-stack. She well knew the interiors and exteriors of this picturesque class of building, but she expended no pains upon their clear delineation, and in all her prolixity of description has left them practically undescribed. The crowd of writers who followed in her steps and imitated her manner were far more ignorant than she of the characteristics which it was thought becoming and necessary to import into their improbable and incongruous tales. Although she leaves us disappointed and unsatisfied, she does not shock us by the rubbish which disfigures their pages, and we are accordingly grateful. Only one writer essayed to combine the charm of realism with the charm of old romance, the Wizard of the North, at whose touch the past lived again for us, and in whose magic mirror its works received a new beauty and a new meaning. His works afford an inexhaustible field for the searcher after the "architecturesque," and although we cannot pretend to collect all his descriptions and allusions which bear upon the art of the past, we may be sure that by opening at hazard the many volumes he has left us, we shall find illustrations of rational and appreciative treatment of architecture as an accessory of fiction.

ST. HELEN'S CHURCH, BISHOPSGATE.

ON the 29th of February the Lord Mayor, attending in state, unveiled a Shakspeare memorial window in the Nuns' Aisle at St. Helen's, Bishopsgate. The Rev. Dr. Cox, vicar in charge, has good reason to claim one William Shakspeare as a parishioner. The name appears in an assessment-roll dated October 1, 1598, which the late Rev. W. J. Hunter found amongst the Dissolution archives in the old Carlton Ride Record office. One would be only too glad to feel sure that upon the poet this assessment at 5*l.*, with a rate of 13s. 4d., was made. But the St. Helen's vestry records which cover the period of Shakspeare's stay in London are unluckily lost. Though we know of him as actually acting at the Bull Inn, Bishopsgate, we cannot point with certainty to any of his domiciles in London before his sojourn at Blackfriars. Shakspeare devised his house there to his daughter, Susannah Hall. Nevertheless there is pleasure in chronicling that in our utilitarian age a private individual comes forward, and, with so spontaneous and graceful a gift, seeks to commemorate the poet's name without disclosure of his own.

Nor, indeed, is the place unworthy of the deed. To a church which contains the tombs of a Crosby and a Gresham, a Pickering and a Julius Cæsar, we would scarcely deny the somewhat fanciful style of the civic West Minster. In the fourth century of the Christian era the son of Constantius Chlorus, professedly inspired by the ἐν τούτῳ νίκα that shone forth resplendent from the visionary cross, overthrew the heathen temples of Byzantium, and consecrating the new city to the Virgin, set up the Roman Government in the Eastern capital of Licinius. Ere this his mother Helena, born in our own island, with a devotion which won for her the titles of *Piissima* and *Venerabilis Augusta*, had undertaken a then unwonted pilgrimage to Jerusalem. Claiming to have discovered the true cross, she built a church over the Holy Sepulchre. It was fitting that her name should be bestowed upon a foundation which arose, and it is believed over a Roman building, during the struggles for possession of the grave which she had sought, and finding, had protected. There are who say, on what authority we know not, that the body of St. Eadmund, the martyr-king, was deposited here for a while pending the ravages of the Danes in East Anglia. However this may be, we can more confidently reckon the church's establishment from the middle of the twelfth century. In 1180 Ranulph and his son Robert granted it to the canons of St. Paul's. Early in the century following the Convent of Nuns Benedictine was dedicated to St. Helen and the Holy Cross.* Augmented by another William de Basinge, sheriff (1308), the convent's annual income at the Dissolution amounted, says Speed, to 376*l.* 6s., or about 10,000*l.* at this day. Of the once extensive buildings, the Nuns' Hall, with its crypt below, long used by the Leathersellers' Company, existed until 1799, when most of the site was covered by St. Helen's-place. According to a plan taken after the general repairs of 1808, the two aisles, with two chapels (one of these latter then serving as a vestry), stand nearly north-west by south-east; the wider aisle, or Nuns' Aisle, at a higher level, being to the north-east; and beyond this the former Nuns' Hall and the other priory buildings. A feeble western tower and a Jacobean porch to the south by no means improve the plain exterior. The Gothic and irregular interior,—a survival of the fire,—has been restored by Inigo Jones (see the inscription over the southern door), and twice within the last eighty years. No other City parish church can compete with its magnificent collection of monuments, brasses, and tombs, their beauty and interest enhanced by the arrangement of many upon the floor. Some come from the neighbouring church of St. Martin Outwich,—at the corner of Threadneedle and Bishopsgate streets,—which was destroyed some ten years since. The two western bays, forming what is termed "the Void," were reserved for services at interments. The oldest tombs in this division are those of William Kerwin, freemason (1504), and Magdalen, his wife (1592),—an altar tomb, bearing incised figures; T. Benolt (1534); R. Cotsbrook (1393), and Dame Abigail Lawrence (1682). In the Crace collection are two views of Sir John Lawrence's house, built 1646, in Great St. Helen's; in the church chancel, against a pillar, is a pretty carving of his armorial bearings, which marked his seat as lord mayor, 1665. On the "Void" northern wall is a singular monument to John Robinson, alderman (1592), and his wife, Christian (1599), who were happy in the nine sons and seven daughters that kneel on a fald-stool behind them. Close by is the canopy in Purbeck marble (from St. Martin's), above the tomb of Alderman Hugh Pemberton and his wife Katerina (1500). In the smaller or southern aisle are the graves of J. Leuenthorpe, a brass (1510), F. Nottingham (1530), and many others which we need not particularise. The church is rich in brasses; those of Nicholas Wootton (1482) and John Brent (1451), rectors of St. Martin's, are from that church. Weever mentions the burial here of Henry Gloucester, and Stow that of Thomas Langton, both in 1350; but the most ancient existing monument would seem to be that bearing the recumbent figures in alabaster of Sir John Crosby and Agnes his wife. These effigies are of much interest: the one for the lady's remarkable head-dress, the other for the alderman's gown over plate armour, with a collar of suns and roses,—a Yorkist badge,—around the neck. It were almost unnecessary to say that Sir John Crosby, grocer and woolman, built Crosby Place or Hall, in 1466, on a lease from Alice Ashfield, prioress of St. Helen's, at 11*l.* 6s. 8d. yearly. He died in 1475, when his widow sold the hall to Richard, Duke of Gloucester. It is frequently mentioned by Shakspeare in his play of "Richard III." Crosby Hall was subsequently occupied by Sir John Spencer, whose daughter Elizabeth eloped with William, first Earl of Northampton, from Canonbury Manor-house (1593). The Spencer monument, placed by

* This foundation is assigned to William, son of William the king's goldsmith, *alias* William de Basinge, dean of St. Paul's.

Lord Northampton in St. Helen's, carries recumbent figures of Sir John and his wife Alicia, together with one of their daughter, the great heiress, wearing an immense hoop, kneeling by their feet in penitence for her disobedience. The Crosby tomb stands to the south of the altar; to the north are the tablet of Sir Andrew Judd, Skinner (1558), and the tomb of Sir William Pickering and his son beneath a lofty marble canopy of two enriched arches on paired columns. Pickering was one of the chiefest gentlemen in his day, whether for learning, arts, or warfare, whilst his personal beauty and excellence in the *leniores virtutes* of life are reputed to have softened one who refused her royal hand to the kings of Sweden and of Spain. Sir Andrew Judd's benefactions to the City and Tunbridge, in the shape of almshouses and a school, compare not inaptly with the similar endowments of his fellow-citizen, the "Royal Merchant," founder of Gresham College, some almshouses, and the Exchange. In the north-eastern corner of the church stands a large sculptured altar-tomb, on whose marble slab was long afterwards inscribed, "Sir Thomas Gresham, knight, bury^{d} Decem^{br} 15th, 1579." Above hangs his helmet carried at his funeral. In a spirit different from Bancroft's, he meant, Stow tells us, to build a new steeple, "in recompense of ground filled up with his monument." Near, on the northern wall, will be seen a curious memorial to Martin Bond, train-band captain, governor of Tilbury Fort *temp.* Elizabeth. He sits in his tent, outside of which stand two sentries, whilst his servant brings up his horse. Adjoining is the monument of his father, William Bond (1576), "Flos Mercatorum," a merchant adventurer rivalling his neighbour, Sir Paul Pindar, and most famous in his age for great enterprises by sea and land.

Passing the Nuns' seats, now removed into the chancel, we come to the ugly entrance to the vault which Francis Bancroft erected (1723) during his life-time. He gave his generally considered ill-gotten gains to the maintenance of this and the almshouses in Mile End-road. Left in trust to the Drapers, each newly-erected master of that Company was expected to visit the vault and inspect the embalmed remains within. Another fantastic monument is that of Sir Julius Cæsar, Izaak Walton's "charitable Sir Julius Cæsar," of Italian parentage, who filled many high offices in the reign of Queen Elizabeth and her successor. As Chancellor of the Exchequer and Master of the Rolls his legal pursuits are exemplified in the white marble scroll in counterfeit of a sealed deed-poll, whereby Julius Adelmare (his father's name), alias Cæsar, covenants to pay the debt of nature whenever it shall so please the Almighty. The table is a fine piece of work by Nicholas Stone, for which he received 110*l.*; its plinth lies several inches below the modern pavement. The monument was fixed in the chapel of the Holy Ghost on the 27th of February, 1635. Cæsar was buried near the altar on the 18th of April the next year. In 1877 a tablet was set up against the northern wall, by the so-called Nuns' Grating, in memory of Alberico Gentili, an exile for conscience's sake to our shores in the sixteenth century, and author of the great work "De Jure Belli." The register records the burial of his father Matteo "near the cherry-tree," and of the son "at the feet of Widow Coombs, near the gooseberry-tree," in the Convent garden which lay between the church and the western side of the Hall. Nor should we pass unnoticed the monument, —removed from St. Martin's,—of Alderman Richard Staper (1598), forerunner of the Turkey and East Indian trades; on the other hand, Robert Hooke, whose inventions and research play so leading a part in the earlier transactions of the Royal Society, rests here in a grave unmarked. For a memorial of St. Helena herself we are told to look in the Chapel of the Virgin, at a small figure on a bracket, in good old Italian workmanship, of a young woman with a book on her knee. The portion assigned to the convent inmates was screened from the body of the church. The oblique apertures (or squints) in the northern wall gave a view of the high altar from chambers, on two floors, in the convent without. One set of these, to the east, supposed to have been reserved for refractory nuns, is covered with a canopied altar of stone.

The calm and repose of this old-world corner are in unison with the antique aspect of the houses which stand southwards of the church. These retain, both within and without, many fine early Jacobean features. Of Sir John Lawrence's we have already spoken. Adjoining is No. 10, which claims to be one of the oldest private residences in the City,—a reputed home, in fact, of Sir Thomas, father of Anne, Boleyn. During some recent alterations were found behind the wainscot a number of Elizabethan coins, together with some very curious quack advertisements of the period. In Mr. Rolfe's office here are two fine bits of German wood-carving. They are the two heads of a large cask that held a present of Rhenish wine made to King George III. when Prince of Wales.

IN THE MERSEY TUNNEL.

THE driving of tunnels under rivers is not yet so ordinary and every-day a practice but that some interest may be felt in a few words about the aspect which the work presents in operation. As to the general scheme of the Mersey Tunnel, we gave some particulars last year (see *Builder*, Sept. 29, 1883). The work is now in a fair way for rapid completion.

In order to see the actual process of tunnel-making, "first catch your hare,"—*i.e.*, first get permission, not to be given without showing cause,—as the curiosity to see the place has developed to an extent rather inconvenient. Having taken this preliminary step, proceed to the yard, and invest yourself in various defences against wet from over head and under foot, and follow your guide, who will probably be one of the intelligent and civil overseers, into the "cage," which forms at present the only means of communication between the upper and under world. Dropping rapidly down the shaft for 100 ft. or so, we find ourselves in a very damp and dripping cave, opening into the tunnel. This is near the Birkenhead end, and not far from the river-bank, or rather from the dock wall which now takes the place of the bank. But the tunnel extends far inland from this point, having a long gradient to reach the surface. The gradient is 1 in 30 either way, a short space in the centre being level. A very considerable portion either way is fully excavated, and presents the aspect of a long continuous cave or grotto, dimly and uncertainly lighted, very muddy under-foot, with rivulets of water running down it, and in certain places a considerable drip from the roof. Along the middle a tramway is laid, and here and there our light reveals a horse dragging trucks along the tram, or waiting till he is wanted for another load. The horses employed in the work have lived down in the tunnel ever since it was commenced, having their stables built up in one part of the excavation; and they seem none the worse for this continued existence in damp and semi-darkness. The greater part of the wholly excavated portion of the tunnel has its brick invert already laid; the top is still in many places in the rough, and in these portions it is that the water still comes in, though not in a more concentrated form than would make a lodging-house shower-bath, and that only in parts. The overseer tells us that they always know when it is high tide in the river above by the additional influx of water; whence it is concluded that the water comes in, not vertically, but through faults on the banks of the river, possibly arising partly from disturbance of the ground in building the dock walls and quays.

Having walked up to the furthest excavated portion on the Birkenhead side, at which point work is in full swing, we retrace our steps towards mid-channel, passing the entrance-shaft, and arriving presently at a part of the work in which, at the time these notes were made (a few weeks back), the passage has as yet only been cleared by the Beaumont excavator, which leaves a circular funnel, 7 ft. in diameter, as round and smooth as if it were the interior of a monster gun-barrel. Progress, somewhat difficult, through this portion, led to another fully-excavated length, and thence to the centre level portion of the tunnel, which, again, was at that time only the seven-foot-bore, and this, being filled with water up to the middle, and no tram-line having been as yet laid on the staging, it could not be penetrated without more sacrifice than the object was worth; so we contented ourselves with the reflection that we were, at least, very nearly under the middle of the Mersey, and had 30 ft. of river-bed and 90 ft. of water over our heads; not to speak of shipping, which may be regarded as thrown in.

The section of the tunnel, as complete, is a horse-shoe brick arch of 13 ft. radius, in some portions with the solid rock (which varies in hardness) as a skewback, in other cases with built skewbacks intervening between the crown arch and the invert arch which forms, constructively, the bottom of the tunnel. The finished surface of the rails will be about 4 ft. above the channel of the invert, the tunnel being 23 ft. in height between brickwork, and 19 ft. from the rail level to the crown. In the portions under the river the arches are built with three rings of blue Staffordshire brick and three of red brick; in the land portions two rings of each have been thought sufficient. With the brickwork complete, and with channels at the back of it to carry off the water of percolation, the tunnel seems likely to be as dry as it is necessary for a tunnel to be. In the earlier stages water has been the difficulty, and, so far as we could gather, the only difficulty. The stuff to be cut through, sandstone rock, was all of the same nature, and nearly homogeneous in character; and, in fact, if the demand had been made, there seems no reason why the operation should not have been carried out years ago. But the influx of water during the earlier stages of the work was a serious temporary difficulty, and necessitated constant pumping. The following rough diagrams will assist in showing the principal means that were taken to meet this difficulty. The first operation of all, before commencing the actual tunnel for traffic, was to sink the shafts and to bore the water drain below the tunnel and with a reverse gradient. This is shown by the black line (A B) in fig. 1,

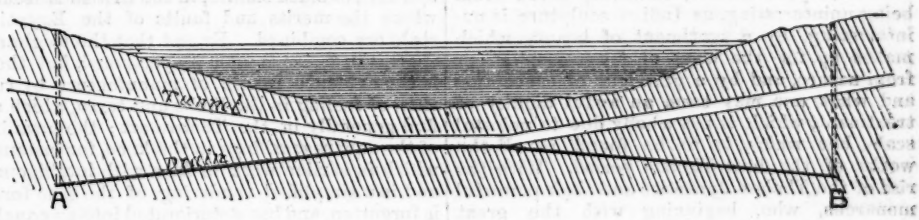


Fig. 1.

where it will be seen that the drain is coincident with the tunnel-level in the centre, and falls shorewards each way, by a gradient of 1 in 900 in the centre portion, and 1 in 500 for the rest. All water which may collect in the traffic tunnel, after falling to the centre runs into the drain below, and is carried back again to the shore and pumped up to the sewer level. After this drain was made, the Beaumont excavator made the first piercing for the traffic tunnel, and then came the work of excavating from the 7-ft. bore thus formed, to the full height of the tunnel. Here the water necessitated a special course; instead of cutting in the first instance to the intended gradient of the tunnel, each length of work was excavated upwards as shown

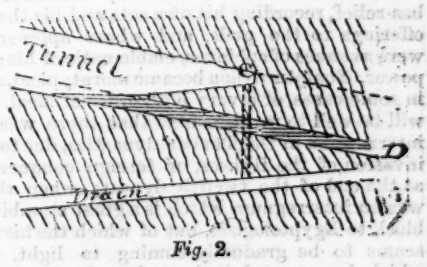


Fig. 2.

in fig. 2, and at the highest point of the excavation (C) a vertical shaft was sunk into the main drain. Thus the water which collected at the end of the workings lay in the angle below where the men were employed, and in the seven-foot heading D, and as the stuff was cut down the drain shaft at C carried off the water. The work of excavation is carried on

partly by the pick, mainly by blasting. The sound of the blast-firing produces a remarkable prolonged echo, reverberating along the tunnel with a very weird effect.

As a mere means of crossing the river, it may well be doubted whether the tunnel under the Mersey would have been worth the cost. But it will assuredly not remain such only. Whatever may or may not be definitely settled at present, it is certain that its ultimate use will be to connect the large systems of railways on both sides of the Mersey; and in this respect it may be said, as we have elsewhere observed about the proposed Parks tunnel in London, that its real public utility depends upon its connexion with main systems. The promoters are, we believe, quite alive to this fact, and predict that, under such circumstances, the new tunnel may look to a traffic comparable to that of the Metropolitan underground railways, with which, as they observe, it may be compared in its circumstances and objects.

MR. POYNTER, R.A., ON EGYPTIAN SCULPTURE.*

I HAVE now described to you in a somewhat discursive manner the art of the Old Empire. One is tempted to say that here is a beginning so brilliant that it might have expanded and bloomed into an art second to none. It is in remarkable contrast to the beginnings of Greek art. A little more freedom, a little more courage in departing from the beaten track, and it might have developed into what it was reserved for the Greeks to accomplish. But for some unexplained reason, the enervating climate perhaps, perhaps a certain sedateness and timidity in the race which made them fear to break through precedent, perhaps the despotism of a vast hierarchy of priests jealous of independent influences which might clash with their own; or, again, because of the obduracy of the materials which came into use in the desire for eternal durability; or again, maybe, from the collapse of the dynasties at the moment that expansion might have taken place,—for any or all of these reasons there is a check on development. The art stiffens into a rigidly-imposed and monotonous conventionality, which is, however, saved from being uninteresting, as Indian sculpture is uninteresting, by a sentiment of beauty which makes up for the want of fresh inspirations from nature, and by a grandeur of conception and what one may term an awful dignity of treatment, which is not wholly due to colossal scale, but which is to be found in all the works of the best Theban period. With the rise of the Theban dynasties and their powerful monarchs, who, beginning with the great Osirtesen in the twelfth dynasty, and ending with Rameses III. in the twentieth, extended their conquests southward into Ethiopia, eastward over Asia as far as Assyria, and are said to have penetrated through Asia Minor into Thrace, and whose ships brought treasures from far distant countries,—in those times the monarch was a greater object of glorification than ever. In the Old Empire his great work was generally the Pyramid, which he built for himself. The magnificence of his own tomb was the great object of his solicitude during his life. In the New Empire he did not neglect this duty: witness the vast extent of the rock tombs in the Valley of the Kings near Thebes; but his great works were stupendous temples erected to the gods, whose courts he filled with colossal statues of himself, whose walls he covered literally with acres of bas-relief, recording his own acts and his thank-offerings to the gods, and whose approaches were avenues of sphinxes, emblematic of his own power. Sculpture then became more typical, and, in some cases, of a very high order of ideal. It will be well to mention here that there was an interruption in the Theban dynasties, due to the invasion of the Hyksos, or foreign conquerors, at the end of the twelfth dynasty, when there was an interregnum which is a great stumbling-block to Egyptologists, but of which the history seems to be gradually coming to light, and which is supposed to have lasted about 500 years. This is immaterial; but Egyptian history in any case resumes with the eighteenth dynasty or New Empire, and the twelfth Dynasty is consequently called the Middle Empire. Works of this Middle Empire are rare, but from some remarks made by M. de Rougé we may judge that the sculpture of that time retained the characteristics of the Memphian dynasties in the close imitation of nature, and combined with it some of the typical character which is more appropriate to monumental works, and which seems to have been initiated for more important works as early as the fourth dynasty; witness a statue of Kephren the builder of the second Pyramid, executed in hard diorite in the sitting pose so well known to us; perhaps the first statue of this type, afterwards so universally adopted, which was made. M. de Rougé mentions, of the Middle Empire, a colossal leg of black granite in the Museum at Berlin, which belonged to a seated statue of Osirtesen, as "furnishing sufficient proof that this school was on a more promising track than that of the New Empire." This praise is, I think, borne out by the few works of that time which are in the British Museum. Some small seated figures, though somewhat rough in execution and stunted in proportion, show a remarkable treatment of the torso. As far as I know, they are the only instances in Egyptian art where the thorax has its proper fulness, and where the square markings indicating the leading anatomical divisions are shown. The character here has something of the massiveness of treatment of archaic Greek art. Later, as I have said, we still find a high standard of ideal. Though the limbs and extremities are incorrect in modelling, and with a less true apprehension of natural forms than in the art of the old empire, we find a noble sense of proportion and great simplicity of treatment. The attitudes are dignified, and with the ease that comes from the air of eternal repose which the Egyptians aimed at in the statues of their kings, but the arms and legs are stiff, the hands without expression and rigidly confined to two positions, open and flat on the knees, or grasping a flower or staff with the fingers closed; the knee-joint is misunderstood, the feet poor, and the torso flaccid, with the folds of the skin marked in preference to the anatomical forms; the anatomical sentiment which I have pointed out in the early figure of Nefer, the architect, has disappeared. These qualities and defects are well marked in the noble sitting statues of Amunoph III., of black sienite, in the British Museum, where the merits and faults of the Egyptian style are combined. Except that the thighs are short, the figure is well proportioned, but there is the evidence rather of manufacture by rule than of feeling in the limbs and torso, which we find generally in the Theban art; the meaning of the square markings in the knee, for instance, which in earlier work is done with intelligence, and is a simplified rendering of the true form, is forgotten, and has deteriorated into an equally divided oblong prominence without the sentiment of nature. But this is not always the case. In the colossal arm from a statue of Thothmes III. in red granite, an earlier king of this same eighteenth dynasty, which is at the end of the Egyptian Gallery in the British Museum, near the head from the same statue, we see the anatomical forms well expressed, I may almost say understood, and there is much suppleness of form in spite of the excessively hard material; and I am disposed to think that if we had more extensive remains of this period we should find an art more directly inspired by nature,—in the details, that is to say, of the body and limbs. The attitudes never vary. Thus the standard of ideal may be said to be a high one, but always within certain limits. It is a fixed standard; that is to say, it varies in excellence, but it never varies in character, or so seldom that it never has a chance of expansion. The reason I have already hinted at, the hardness of the materials which came into use, added to the colossal size which prevailed, effectually put a stop to that free treatment which allowed the sculptor in smaller works and in softer materials to mark them with the stamp of his own individuality. The colossal scale on which so many of these statues are executed is so familiar to you that two or three instances will suffice. The well-known sitting statues of Amunoph III., in hard red sandstone on the plains of Thebes, are 69 ft. high, and in an inscription on the statue of the great official who had charge of the making of these statues, and which is in the museum at Boulak, he tells us that eight ships were built for their transport. "Their landing in Thebes," he says, "was a joyful event." The fist of red granite, which you see in the British Museum, belonged to a statue of Rameses II., which would be 70 ft. high if standing, but this sinks into insignificance by the side of the broken granite statue of the same king in the Rameseion at Thebes, which measures 22 ft. across the shoulders, and which, according to tradition, was laboriously and wantonly thrown down by Cambyses in a fit of destructive fury, and remains in fragments on the spot to this day. Now when we consider the enormous amount of this colossal work which was produced during the eighteenth and nineteenth dynasties, in materials so hard that no one can guess how they were worked without steel tools, it becomes obvious that it must have been entrusted to armies of artisans, who could work only by rule under the superintendence of a master, and without inspiration from nature. Accordingly we see representations in reliefs of the process of executing these statues, where the colossi are surrounded by scaffolding covered with workmen occupied on different parts at the same time; we even see in a painting which shows the process of carving two statues that, although they are only life-sized, two artists are at work on each of them, one at the back and the other at the front; and in an inscription on the tomb of a sculptor named Bek under Amunoph IV. he is called "an artist and teacher of the king, an overseer of the sculptors," and there are various other inscriptions to the same effect, with which I need not trouble you; but all this supports what is sufficiently obvious, that the sculptor was an overseer of workmen, who must have been employed in such vast numbers that they could have had no artistic feeling, but must have worked by definite rules; which, however, must have had their good as well as their bad side, since the Egyptian statues preserved, through the 350 years from Aahmes to Rameses II., that imposing majesty of style, combined with the utmost finish of execution, which strikes the beholder with wonder, reverence, and something like awe. Over-production, however, under Rameses II., carried out in this mechanical manner, finally did its work, and during his long reign of sixty-seven years Egyptian sculpture deteriorated in style with great rapidity. In the twenty-sixth dynasty, 600 years later, under the Saïte kings, there is a revival in imitation of the art of earlier times, combined with excessively high finish, in which Greek influence has been recognised, the Greeks having at that time a permaneut settlement in the western part of the Delta. There are works of this period in the British Museum, but the finest are, I believe, in the Vatican. They show no change in style. In the next century, in the year 527 before the Christian era, came the conquest of Cambyses, who overran Egypt like a furious maniac, and wrought especial destruction at Thebes, which had long ceased to be the seat of the monarchy, and had become a city of antiquities, and the last traces of originality in native art now disappear.

I had originally proposed to myself to touch slightly on the history of Egyptian sculpture, with reference to such influence as it may have had on early Greek art; but the subject is an interesting one in itself, not easy to pass over in a few words, and my own inclinations have always led me towards this study; but the subject is also an important one, as putting before us in a very simple light one of the problems with which a sculptor has to deal. Egyptian sculpture contains, as Flaxman said, "some excellent first principles of art," and on this point I propose to detain you a little longer, as the very regularity and simplicity of treatment in Egyptian art may better enable us to make an application of these principles to practice. I will take into consideration the works only of the New Empire, as it is then that the art becomes typical in form and develops the limited principles by which it is guided; and there is no doubt that we find in these works both grandeur and beauty, and that broad general treatment of form which, while it eliminates detail, gives the leading characteristics, which is the essence of a fine style. The two standing figures of the Goddess Pasht, with the cat's or lioness's head at the end of the Egyptian Gallery on each side of the door, will serve as an illustration of my meaning. The attitude is the normal one; the right hand hangs down by the side grasping the *Tau* or sign of life; the left, slightly bent across the body, holds a long stem of papyrus plant. They are clothed in the mummy-like dress moulded to every inflexion of the figure, in which the goddesses are always represented, whether in detached figures or

* Continuation of a lecture delivered at the Royal Academy on the 3rd inst. (See p. 330, *ante*.)

on the reliefs, and which must not be taken to represent the actual appearance of the dress they wore, but which was used by the Egyptian artists to express, by the simplest means they could achieve, the appearance of the body through a thin material; the form is, therefore, typical and symbolic of a dress through which the movements of the figure can be seen. This was no other than the intention of Michelangelo, when he showed the forms of his figures and limbs through drapery, in a way which you may have heard characterised as impossible and untrue to nature, and which was in effect carried to an excess of mannerism, as usual, by his successors and by his imitators in modern German art. His aim was to apply a typical and normal truth to individual instances. What is true of successive moments of time he condensed in one action, and so produced a higher truth than can be found in the model or the lay-figure.

In the treatment of the arms the rounded and graceful lines are the first point that the Egyptian artist has considered, and he has rendered this quality in excess. In one figure the bend of the arm is shown only by a slight flatness in the form; the round point of the elbow is also shown with great delicacy, and the flatness of the arm at the back above the elbow is also expressed, and we have on the whole a fair but very subordinated rendering of the essential features. The bend of the hand in the wrist is also well expressed. In the other the work is more mechanical, and these details are lost to such an extent that except for the indication of the process of the ulna at the wrist the arm appears boneless. But the true feeling is there which characterises all the best art; that which subordinates detail to gain the first essential characteristics of the female form, grace, roundness, and suavity of line. In this sense Egyptian sculpture is a lesson none the less instructive because of the ignorance of the artist. The feeling for beauty is, no doubt, instinctive; The Egyptian sculptor as naturally invests his work with a well-balanced and beautiful form, as the Assyrian does with a coarse and rugged one. Except in so far as imperfect knowledge of anatomical expression in the limbs and trunk shock the cultivated artistic sense, we find no ugliness in the Egyptian art. Even the monstrous combinations of animals' heads with human bodies under which "fanatic Egypt and her priests" symbolised "their wandering gods disguised in brutish forms," are so skilfully designed and adapted that they do not jar on our sense of propriety, as they do in the hideous monstrosities of the same kind in Indian art. The heads are always superior, and have more individuality than the limbs. The intention to make a portrait is always evident, and in the heads of the three great monarchs which we see in the British Museum,—Thothmes III., Amunoph III., and Rameses II.,—we see unmistakable likenesses. Those of Rameses vary, no doubt; but I have already alluded to the over-production of work in his long reign, which brought about a decline of art; accordingly we find a distinct difference of treatment in the two colossal heads which are in the central part of the Egyptian gallery,—the one, an original of red granite, is in the finest style of art, while the other, which is a cast from a still larger colossus, is decidedly inferior. The one looks like a faithful portrait of Rameses, whose head was of a refined and beautiful type, and is considered to represent what may be called the aristocratic Egyptian countenance, and the resemblance to a beautiful statue at Turin is striking; the other has the appearance of a more mechanical repetition. The fact is that, though Rameses reigned for sixty-seven years, it was etiquette to portray him all through life of the age he had when he came to the throne. We have seen something like this in modern English art. The portraits of Amunoph III., of the previous dynasty, are highly characteristic, and evidently bear a strong resemblance to the original, for they all resemble each other very closely; the somewhat negro-like character, with the flattened nose and projecting lower jaw, producing a hollow form of the cheek from the eye to the thick prominent mouth, is everywhere the same, and the way of insisting on this characteristic trait is a good instance of the typical treatment of form to which I have alluded. The artist has omitted the detail and play of form in the cheek to dwell on this leading point in the character of the face to an extent which is impossible in nature; but there is great grandeur of style in the complete subordination of minor points to a few leading and broadly-treated characteristics. I may mention here the heads on the Greek coins as carrying to the furthest point this insistance on leading characteristics, to the exclusion of all detail which is not typical. But whereas in Egpytian art the dwelling on some prominent distinctive features tends to what one may call caricature, though of an elevated instead of a debased kind, in these Greek heads the balance is so perfectly kept that there is no one point which we can say is forced upon us more than another. If we admire the hollow which marks the setting of the eye, detaching it with such breadth of treatment from the nose and cheek, we no less admire the largeness and fulness of the forms which prevent this hollow from tending to meagreness. If it is the magnificent simplicity of line of the forehead and nose, which is typical of the Greek profile that strikes us, we are no less impressed with the powerful definition of the prominence of the brow over the nose, and the subtle inflection which marks the tip. We cannot say whether it is the clean cutting of the lips, or the softness of the modelling, which most attracts us. We are baffled, in fact, when we try to seize on any one point which shall teach us the secret of their magnificent style, and we are forced to confess that there is no secret but sheer strength and superiority.

And that this is not a universal way of treating the form of the cheek in Egyptian art is obvious from a glance at the still earlier colossal red granite head of Thothmes at the end of the room; for here the cheeks are full and smiling, and the general characteristic quite different, but equally individual. We see in all these heads, however, that certain conventional rules have been obeyed. There is, for instance, a way of rendering the eye which is common to all these statues. A flat and definitely-marked broad line is carried round the eye, and, meeting at the outer corner, is extended towards the temple, which may sometimes have been painted black. This is not universal, however, and I must here draw your attention to the head of a king, who is generally supposed to be Seti-Menephthah, of the nineteenth dynasty, father of Rameses II., but in whom M. Maspero traces a king of the eighteenth. Here we have a class of work superior, I think, to anything we know of the later school. It is a proof that, after all that has been said, the merit of a work must have depended then, as always, on the individual artist who executed it, and that the movement towards fixed conventionality was not in consequence, as has been supposed, of rules prescribed from without; or, at least, that such rules were not so fixed but that artists of genius could, to a certain extent, free themselves from them. I should have liked to give you an illustration of a beautiful draped statue of Rameses II. at Turin, which is also a departure from the usual form of treatment; but, as it is well engraved in Messrs. Perrot & Chipiez's book, I must refer you to it there. The life-sized granite statue of Rameses II. as a boy, in the British Museum, presents also a peculiarity which I have not elsewhere noticed, in the attempt to render the markings which show the divisions of the lobes of the deltoid muscle. This comparatively small statue is also well worth your attention.

I have now touched on all the most noticeable points in the consideration of Egyptian sculpture, and I have endeavoured to show that that dignified grandeur which we admire is due to a genuine understanding of the true treatment of the human figure in monumental sculpture,—the dwelling on characteristic and beautiful forms to the exclusion of petty and irrelevant detail; we have also seen that they never departed from the two or three typical attitudes which I have mentioned, and which I have no doubt they chose deliberately as the most impressive and the most suggestive of majesty and repose. That this in any case was intentional cannot be doubted, for in the reliefs there is no want of life and variety in the movements. The really sublime action of Rameses II. slaying his enemies from his chariot, in a long relief in one of the upper rooms of the British Museum, cannot but have struck you; no art can show anything more vigorous, more true, or more fully expressive of the action intended. The subject of the bas-reliefs is too long to dwell on now; but I may draw your attention to the fact that you will frequently discover a very high feeling for composition, harmonious balance of lines, and good disposal of masses; and there are certain groups of the three Theban gods, Amun Ra, Maut, and Chouso, which are truly magnificent in the arrangement of the varied lines of the figures in combination with architectural forms, which we also see in the figure of Rameses seated under his naos in the relief mentioned above. And in processions of figures you will find a foreshadowing of a striking feature in Greek art, unity of movement, and harmonious disposition of the groups, with a happy variety in the groups themselves. The complete compositions are, however, confined; the walls are covered, but with no eye to the general effect; and when crowds are introduced, as in those of enemies falling beneath the sword of the Pharaoh, all is grotesque confusion,—the figures are heaped pell-mell without order or arrangement; partly, perhaps, from a contemptuous feeling that a vanquished enemy deserved no better treatment.

THE PELE-TOWERS OF NORTHUMBERLAND.

Over and above the grand old castles on the Northumbrian side of the Scottish Border, there are scattered over the district about two hundred towers formerly used as fortified residences by the Northumbrian gentry. These interesting relics are to be seen at the feet of the hills forming the Cheviot range; on the moors; by the coast; as well as along the Border,—in a word, in every part of Northumberland. Many of them are now in ruins; others are in good preservation; and still more numerous examples have been incorporated with more modern additions, and now only form a part of larger mansions. They generally consist of three stories, one above another, and the walls are of great thickness, often measuring 5 ft. The basement chamber is always vaulted with stone groining. Sometimes there is a stone staircase within the tower; but frequently, in the examples now lying in ruins, where there has been only an external stair, this has been removed, and there is no access to the upper portions, except by climbing the crumbling walls. The two upper chambers are generally furnished with stone-arched fireplaces and small mullioned windows; and from the walls project the stone corbels that once carried the beams for the floors.

The pele at Heaforlawe, near Alnwick, is one of the examples now in ruins. When seen from a distance it has the appearance of a solid square of masonry on the ridge of a hill. As it is approached its characteristic features become apparent. It has had three stages, whereof one has been allowed to decay, which has reduced its height to its width, and produced the squarish outline now seen. We have only to climb to the top of the frayed walls to see the wisdom of the choice of site. To the north sweep the undulating lands that are bounded by the Cheviots; to the east lies the great ocean; to the west are the fertile vales near Whittingham and Rothbury; and southwards stands Alnwick Castle, with which it could easily communicate by signals or beacons. It is built of sandstone now toned down to dove-colour; and the interstices between the stones are tinted with green and orange lichens and tiny tufts of weeds.

The tower at Biddlestone has met with a better fortune. It is in good repair. Many of our readers will remember Sir Walter Scott took Biddlestone Hall as his model for Osbaldistone Hall, described in Rob Roy. It stands in a wild heathery country, in the heart of the western moors of the county. We may see that the first residence of the Selbys, to whom this district belongs, was the strong pele now standing. As extra accommodation became requisite additions were made to it, all of which, however, were eventually removed, leaving the pele still intact; and a large modern mansion was erected close by, new from the foundations. The upper portion of the tower thus preserved is now used as a chapel. The vaulted chamber on the ground-floor is utilised as a cellar.

At Ponteland a pele has been treated in a similar manner. Five-and-twenty years ago it formed part of a large house, which has been since taken down, and once more it stands, like a solitary sentinel, erect and vigilant, though scarred and grey. The house in question was used as a vicarage-house; and we may note, it is not at all uncommon to find a tower thus incorporated in a vicarage-house. Embleton

Vicarage-house has a fine pele attached to it. At Shilbotell, Elsdon, and Alnham are additional examples.

Shilbotell pele, described as "turris de Schilbotell" in old times, stands within a stone's-throw of the west end of a little Norman church. It is of Plantagenet workmanship, and consists of three stages, whereof the lowest is stone-vaulted. From the top of this little tower, a large tract of country is under surveillance. It would be almost impossible for the smallest body of men to traverse it unobserved by those watching from this height. In the last century a study and a kitchen, with bedrooms over them, were considered indispensable additional accommodation for the vicar of the day, and they were built on one side of the tower. In their turn these additions were eventually considered insufficient to meet the requirements of nineteenth-century life, and a new wing was added on another side; in virtue of which the ancient tower now stands grouped with these modern features, but still distinguishable and picturesque.

Elsdon tower is of much larger dimensions, with thicker walls, and it has a stone spiral staircase still in use. Many additions were made to it by the late Archdeacon Singleton. There are moors spreading around it far and near; and close by, on the village green, is an ancient church, in which the slain in the battle of Otterbourne were buried. On one face of this noble pele is a panel with a coat of arms and initials signifying it was once the residence of the lord of the district, Robertus de Rede. Alnham tower lies in a secluded spot nearer to Biddlestone. It is in good repair, and of considerable interest.

At Beadnel, near the coast, the small inn has been a pele tower. Some outbuildings have been added to it, and the topmost story rebuilt; but there are the massive walls, the low doorways, and the small window openings characteristic of the Plantagenet period in the rest of the building.

The Plantagenet pele in Wallington Hall, the seat of Sir Charles Trevelyan, is an example in which the original fortlet has been preserved from century to century, notwithstanding additions and alterations that have more than quadrupled the original accommodation it afforded. This is in good repair. It overlooks a wide sweep of country.

On one of the groups of islands on which Grace Darling's lighthouse stands, known as the Farne, there is a fine pele tower, also in good preservation. It is very stalwart and strong, and like the rest, of three stories in height. There is a small chapel on this island, and the tower was, probably, the residence of those who ministered in it or defended it.

At the great archæological gathering that is to take place in Newcastle-upon-Tyne in the course of the approaching summer, these pele towers, or their sturdy comrades in the adjacent parts of the county, are likely to occupy considerable attention.

THE BUILDING OF TOWN HOUSES.

FITTINGS, PLANNED FURNITURE, AND CONSTRUCTIVE DECORATION.

MR. R. W. EDIS, F.S.A., delivered the third and last* of his series of Cantor Lectures on this subject in the Hall of the Society of Arts on Monday, the 3rd inst., Mr. B. Francis Cobb in the chair. Mr. Edis said that in the present lecture he proposed to offer to those who were furnishing old, and to those who were building new, houses, some suggestions which might commend themselves as being worthy of adoption as tending to the better ordering, greater comfort, and more artistic homeliness of the rooms we lived in. He held that true art in the house meant the practical rendering, in good taste and pleasant guise, of all the absolute necessities and requirements of modern life. All domestic art which ignored the purposes to which the furniture, decoration, or general belongings of a house were to be put was bad. Comfort, utility, and good taste should go hand-in-hand with the internal finishing of every house. While it often happened that no pains or expense were spared to make houses comfortable and convenient internally, and artistic and beautiful in their external design, it was apparently often forgotten that the true decoration and artistic furnishing of the building should be considered and thought out as part and portion of the whole fabric; they could not properly be separated, and although, to a certain extent, eclecticism might and would prevail in the smaller items and movable furniture, and in the numerous necessary articles which went to make up the comfort of the various rooms, the general scheme of decoration and fitting-up of a house should form a part of a harmonious whole. Although in the ordinary furniture of our houses we had lately introduced a new order of things, and had made the designer and manufacturer work up to the improved taste of the people, we were still content to look upon the furnishing of our rooms as more or less consisting in the purchasing of various ready-made goods, which could be stored and used for a while and removed as occasion might require. In doing this, we were apt to get furniture and fittings which, like ready-made clothing, were often misfits, and in part only answered the purposes for which they were bought. We were not inclined to consider, with any amount of care, the requirements of the various rooms and to construct our fittings to suit those requirements, so as to make them not only useful and ornamental, but part and portion of the rooms we lived in, in harmony and keeping with the general design, and with due regard to proper sanitation. In fact, we completed our buildings without thought as to their internal fitting-up. By this want of thought there was often much increased expense in the building. For instance, window-recesses, which could be well fitted with box or ottoman seats, answering the double purpose of comfortable resting-places and store-places for papers, clothes, and other household goods, were finished with panelled and moulded wooden backs and skirtings altogether unnecessary. Again, recesses, which naturally suggested themselves as proper places for fitted cupboards, were completed with mouldings and skirtings which had to be removed, or else they increased the expense of fitting by the labour and time involved in "suiting," as it was called, the fitting to the mouldings, which not only were not wanted, but were absolutely in the way. Most people required, nowadays, that there should be some other means of ventilating their rooms beyond merely opening doors or windows, and all this work should be constructed and arranged as part of the furniture and fittings of the house,—*i.e.*, in all newly-built houses, any arrangement for bringing in fresh air behind grates or through tubes should not require the cutting away and making good of the work, which entailed much inconvenience and expense. Such matters as these, and the provision of picture-rails, book-shelves, and shutters that will shut without inconvenient contact with window-blinds and curtains, should all be considered by the architect in the planning of his rooms, many of which could be provided with constructed and useful furniture suited to their various requirements. The provision of such constructed and fixed furniture would not only save money being spent on finishings which would then be unnecessary, but would provide a large amount of the heavy furniture of the house, such as wardrobes, book-cases, buffets, &c., at considerably less cost than the movable articles, and in accord and harmony with the design of the house. Proceeding to enter into details as to the wide room for improvement which exists in the construction and arrangement of sanitary and other fittings, the lecturer showed how small quantities of waste water might be collected and stored for a time so that their discharge in the aggregate might be made to flush the drains of the house in a manner that was not possible when they were discharged in driblets. It was to be regretted that modern builders were content to ignore to a large extent all modern improvements. We still saw used locks and door and window furniture which were a disgrace to any civilised community; composition handles; trumpery finishings; unwieldy sashes, with no means of lifting them; and box-shutters which were either never shut or which, if they were, necessitated the moving of every piece of furniture in the windows. What could be worse than the wretchedly-constructed decoration, in the shape of plaster cornices and centre-flowers, to be seen in most houses? If ornamental ceilings were wanted, why not dispense with the old-fashioned lath and plaster, and use more extensively fibrous plaster, which could be modelled to any design, and could be screwed on to the joists? This sort of work was infinitely better than the old system of daubing two or three coats of heavy plaster on to the walls and ceilings, for owing to its strength and tenacity it had no liability to crack, was virtually fireproof, was rapidly fixed, and could be decorated within a few weeks. Both fibrous plaster and *papier-mâché* adapted themselves to the ornamentation of ceiling and walls, and could be successfully applied to many purposes in the building of a house. Leather-papers, "Lincrusta-Walton," glazed faïence, and other materials, were also referred to as materials admirably adapted for use in the constructive decoration of houses. In conclusion, the lecturer pointed out that in the best Renaissance houses almost invariably the decoration, furniture, and fittings were designed by the architect, and were made more or less elaborate as the taste and luxury of the age required. If the same system obtained now as it did in the best periods of art we should have better and more satisfactory results in the interiors of our own houses, with no material difference of cost to the client. If the architect were, as he should be, the chief or head-builder, working in association with the sculptor, the painter, and the upholsterer, the art-work of his building would, if he were himself an artist, having delight in his work, speak more surely than any words, and we might then hope for better buildings and for higher art-work.

The Chairman, in proposing a vote of thanks, said he felt sure that the general views enunciated by the lecturer in the three discourses with which he had favoured them had met with the approval of the audience, most of whom, however, could only feel how impossible it was for them to adopt all his suggestions in the houses which they inhabited. Still, he had no doubt that future generations would benefit by the adoption of most of Mr. Edis's suggestions. The Society of Arts would do and was doing its best to improve the habitations of the people, as would be seen from the fact that they would this year give prizes for essays on dwellings for the poor, and on the reconstruction of central London.*

The vote of thanks having been carried by acclamation, Mr. Edis briefly acknowledged the compliment.†

DETAILS OF CLOISTERS AT RATISBON.

THE Abbey Church of S. Emmeram, situate at the southern extremity of the city of Ratisbon (or Regensburg, as it is locally called) has some remarkably interesting cloisters, forming three sides of a square, of fourteenth-century date. The bay we illustrate from the north walk is the only one here of its kind, the others, without exception, having glazed windows. The effect of the double arcade is exceedingly effective, especially so when taken with the remarkable rose-window which surmounts it. Internally this, as well as the arches below, has a species of chevron worked in the label, the feature being omitted in the exterior.

The work has not been carefully set out, the internal arches being much out of radius; a similar instance, it will be remembered, exist in the arcade at the north end of the chapter-house slype to Southwell Minster, Notts. The sculptures are from capitals in the same walk of the cloisters. The whole suffers from white-wash obliterating much evidence of jointing and workmanship. The drawings were plotted to scale on the spot.

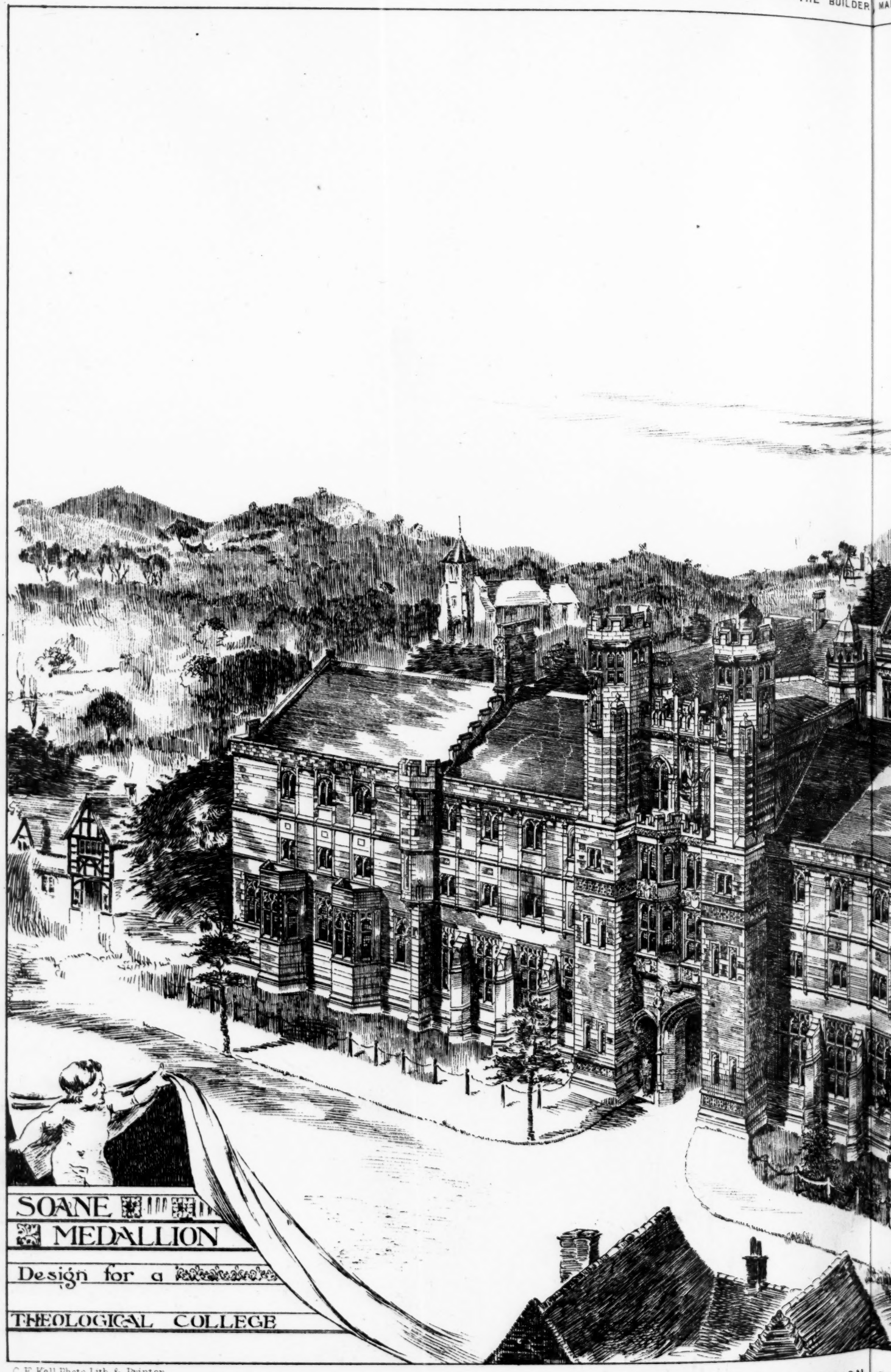
W. A. P.

The Pepys Memorial.—It has been found necessary to postpone the unveiling of Pepys's monument, at St. Olave's, Hart-street, E.C., from this Friday, the 14th, to Tuesday next, the 18th instant, in consequence of official engagements which will prevent the First Lord of the Admiralty and the United States Minister from attending to-day.

* For summaries of the first and second lectures see *Builder*, p. 295, *ante*.

* The Council of the Society have had placed at their disposal by Mr. William Westgarth, a member of the society, a sum of 1,200*l.*, to be awarded in prizes for essays on the above subjects. The first prize will be a sum of 250*l.*, for the best practical essay upon the re-housing of the poorer classes, and especially of the very poorest classes, of the metropolis. The second prize will be a sum of 500*l.*, for the best practical essay upon the whole subject of the sanitation, street re-alignment, and reconstruction of the central part of London. Further particulars may be had on application to the secretary.

† Messrs. Thomas Crapper & Co., of Marlborough-road, Chelsea, executed the ventilating arrangements at the new Ball-room at Sandringham, referred to in Mr. Edis's second lecture (see p. 297, *ante*).



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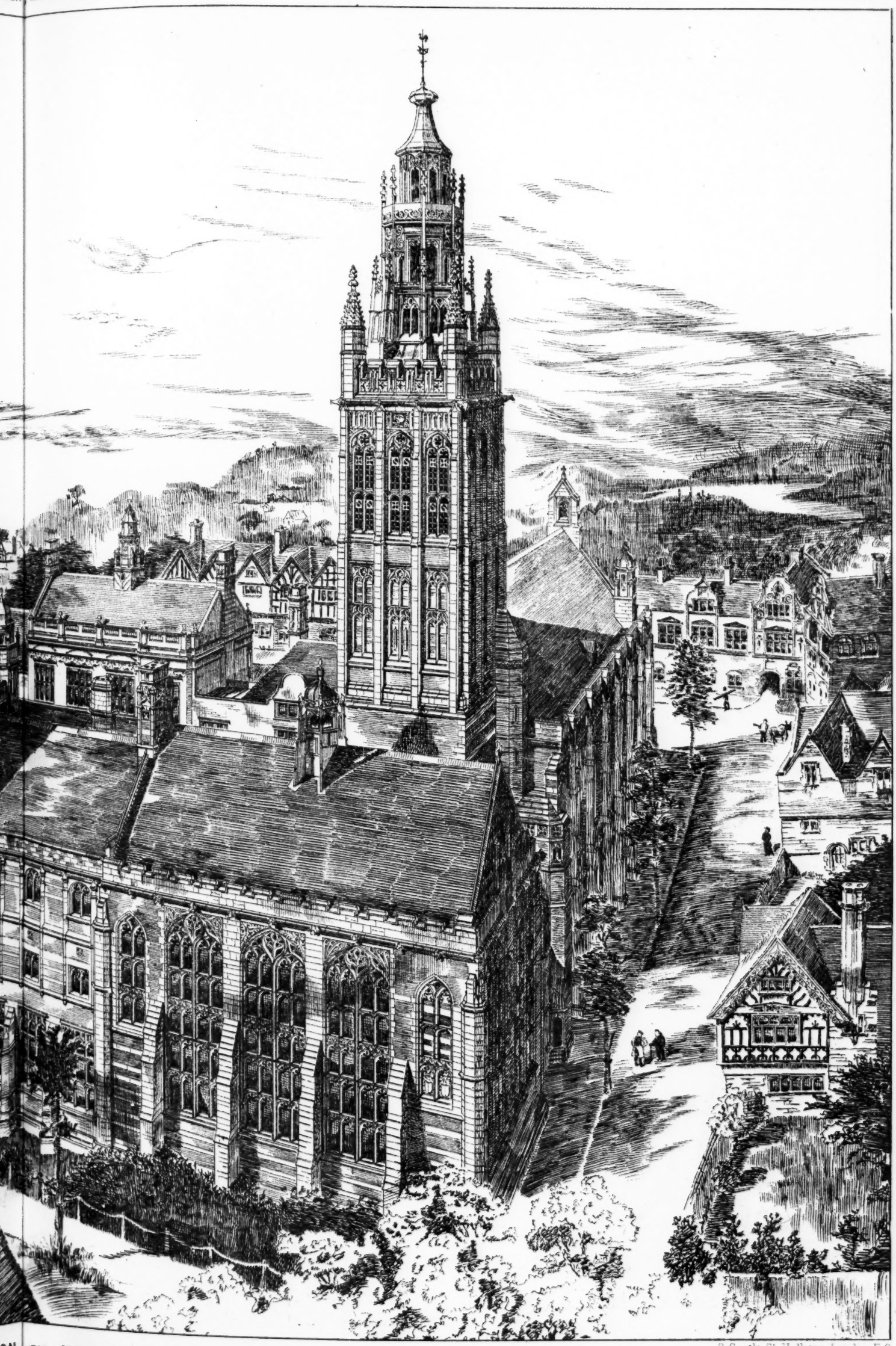

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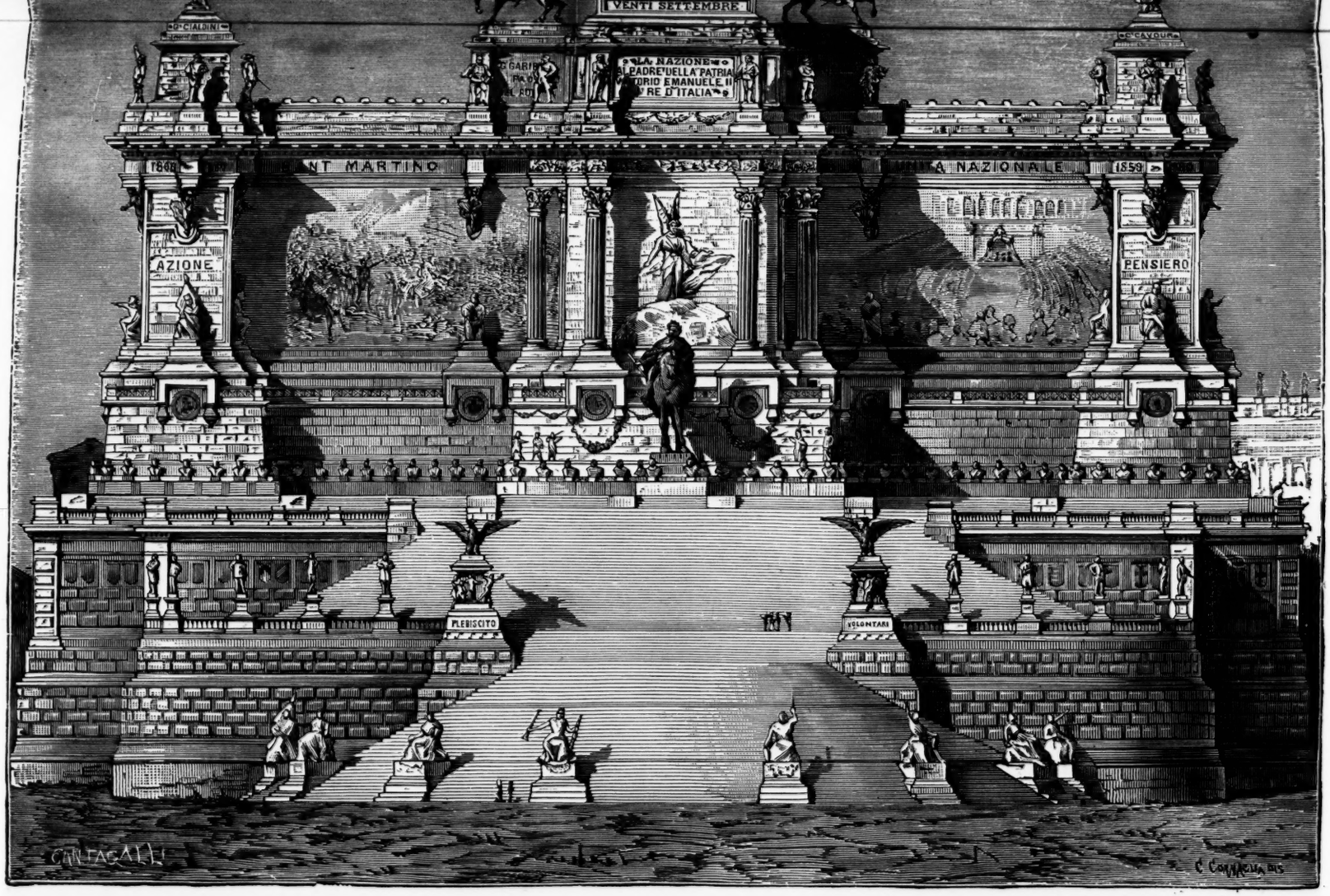
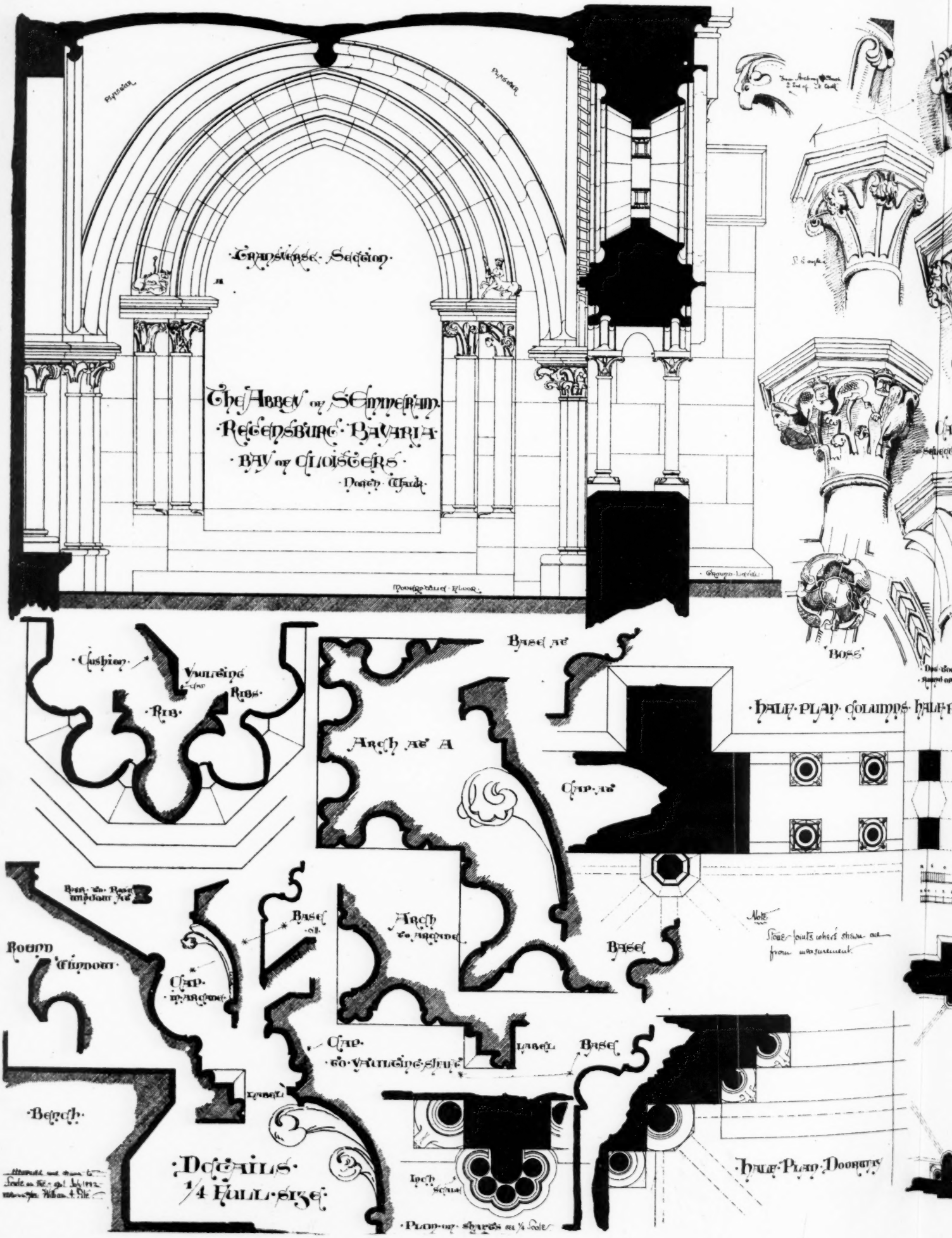


COMPETITION FOR THE MONUMENT TO VICTOR EMANUEL AT ROME.

Design by Signor Luigi Boffi.



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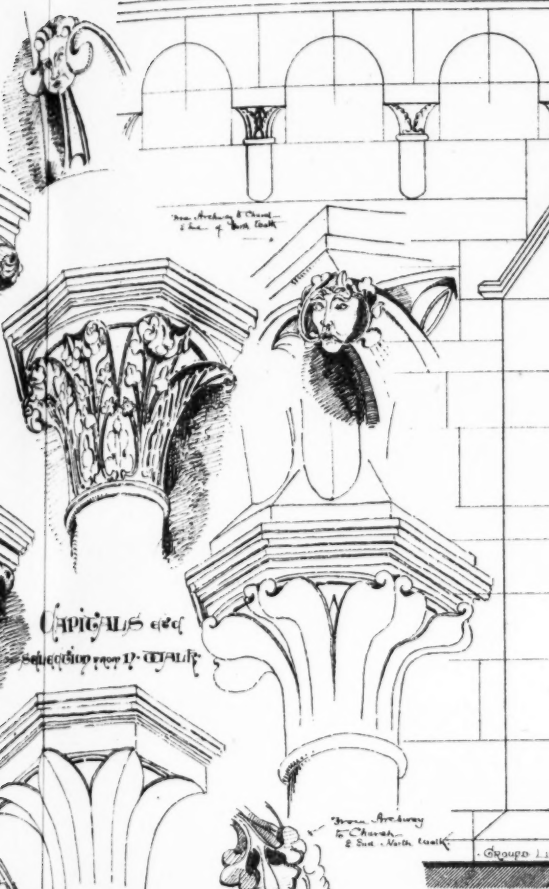
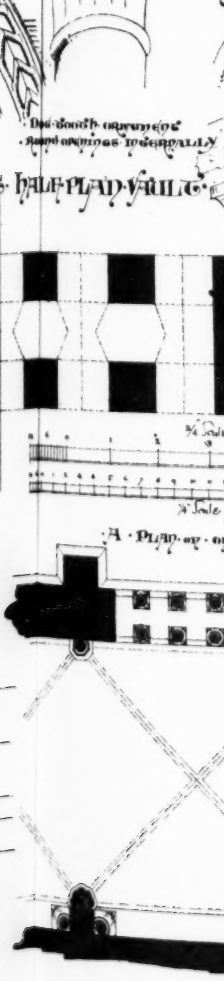
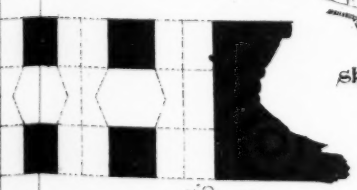


Capitals and
Selection from details

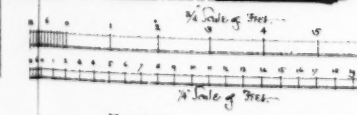


Bay South transept
and cloisters beyond

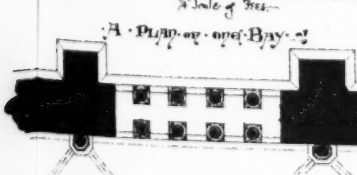
Half Plan Vault



Sketch of Corbel

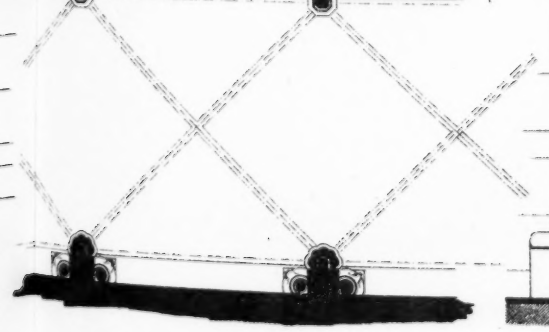


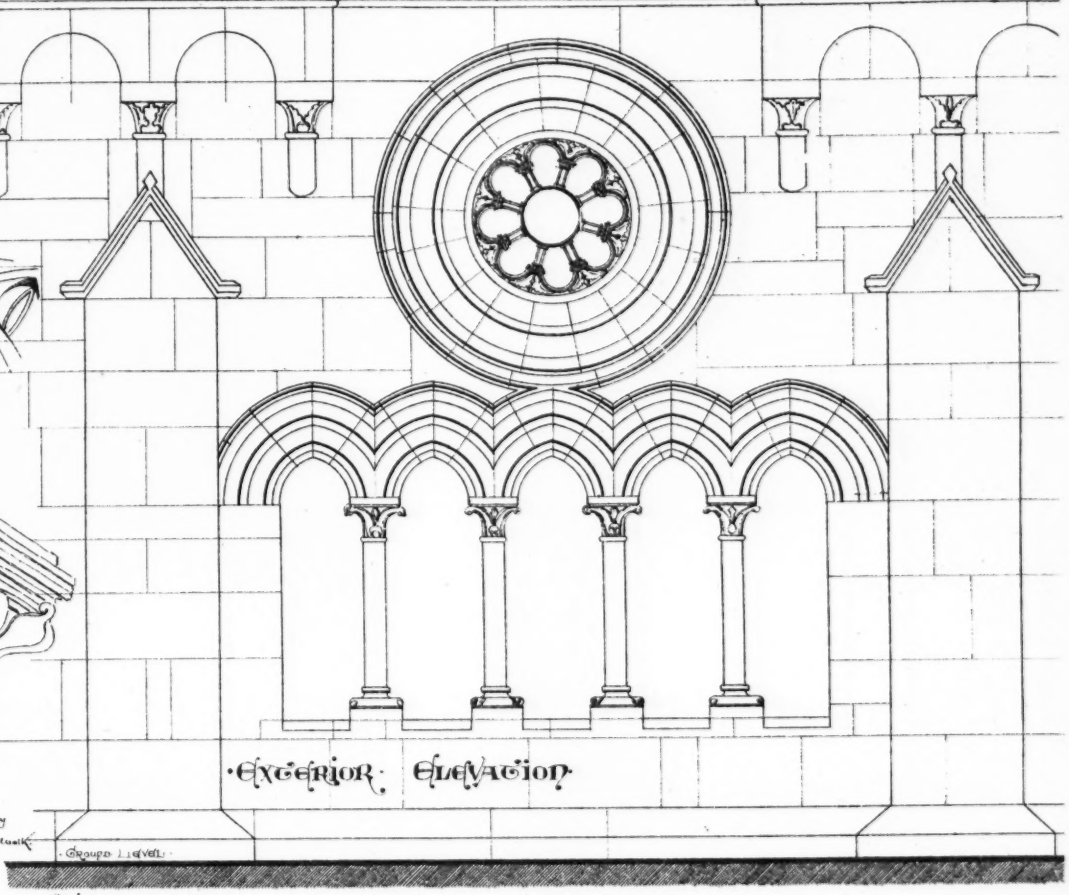
¼ Scale of Feet



½ Scale of Feet

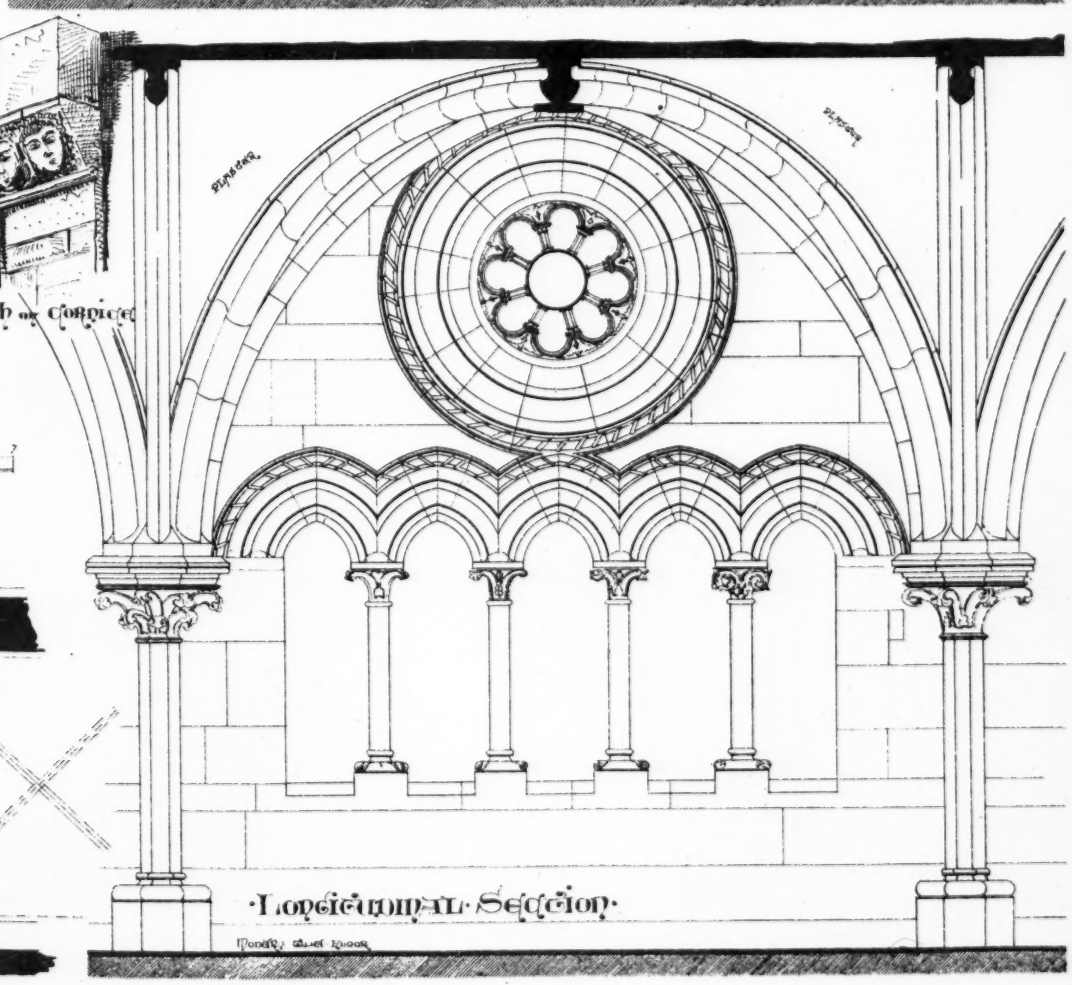
A Plan of one Bay





Exterior Elevation

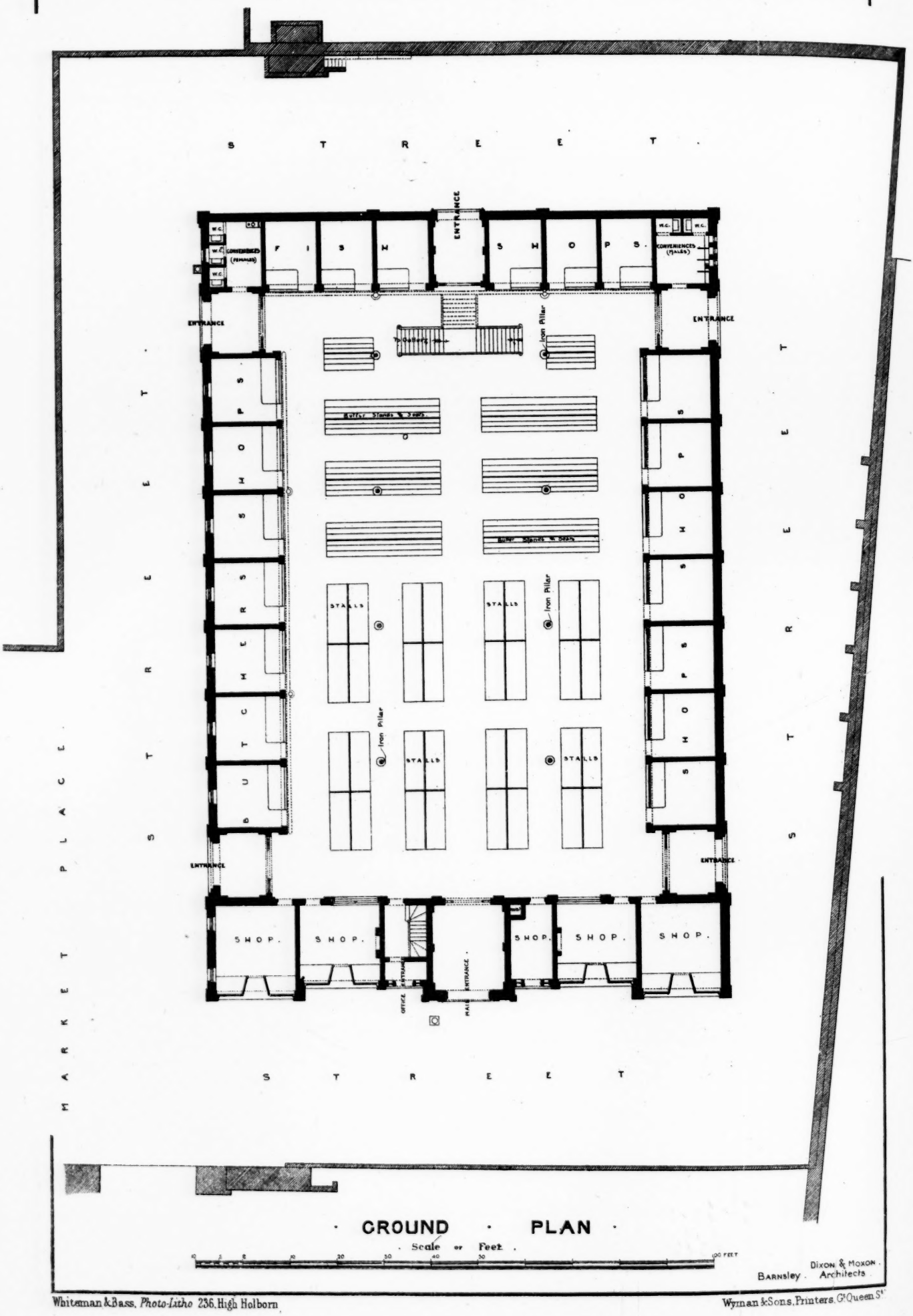
Ground Level



Longitudinal Section

Ground Floor Level

· MARKET · HALL · BURTON ON TRENT ·



BARNSLEY. DIXON & MOXON. Architects.

Whiteman & Bass, *Photo-Litho* 236, High Holborn.

Wyman & Sons, Printers, Gt Queen St.

· MARKET · HALL · BURTON ON TRENT ·

FRONT ELEVATION

· TRANSVERSE SECTION LOOKING WEST ·

Scale

Whiteman & Bass, *Photo-Litho.* 236, High Holborn.

Wyman & Sons, Printers, Gt Queen St.

NEW MARKET HALL, BURTON-ON-TRENT.

THE above building was opened in October last. It was the subject of a competition some three years ago, and these were the plans selected by the Corporation, on the recommendation of Mr. Evans, of Nottingham. The original intention was to spend about 8,000*l.* on the building, but the first arrangements have been added to in many ways, and the total cost, including all fittings, has been about 14,000*l.*

The market is covered by an iron roof in three spans, supported on iron columns and lattice girders. Each span is glazed, on the north side only, with Rendle's system of glazing, this arrangement favouring an equal distribution of light from the best aspect. The interior walls are lined with light buff bricks, relieved with red brick arches and purpose-made moulded brick strings and cornice. Concrete has been used for the floors and the arches over one-story shops; and the butchers' and fish shops, and the latrines, are all lined with white glazed bricks, having red brick strings and moulded brick cornices. The exterior is built with red Birmingham bricks and dressings of Stanton stone. The sculptured panel in the pediment over the principal entrance is a representation of King John granting a charter to hold a market at Burton to a former abbot, and it has a peculiar appropriateness, not only in connecting the present building with the early history of the markets, but because part of the site on which the building is erected was formerly part of the site of Burton Abbey. Messrs. Chamberlain Bros., of Burton-on-Trent, have been the contractors, and they have carried out the work in a satisfactory manner. Mr. Roddis, of Birmingham, executed the carving and sculptured work. Mr. H. J. Corser acted as clerk of works under the architects, Messrs. Dixon & Moxon, of Barnsley.

DESIGN FOR THE VICTOR EMANUEL MONUMENT, ROME.

WE publish this week another of the designs submitted in the competition for the proposed monument to Victor Emanuel, by Signor Luigi Boffi. The two which we gave last week are stated to have received "first premiums" each, and were, we presume, bracketted together. The one by Signor Boffi received a second premium.

DESIGN FOR A THEOLOGICAL COLLEGE.

THIS fine drawing, with much picturesqueness of design, is the perspective view of the design for a theological college by Mr. J. O. Harris, of Bolton-le-Moors, which gained its author the Soane Medallion in the students' competition at the Institute. We referred to this and other designs in an article in last week's issue (page 327 *ante*).

EXHIBITION OF THE ROYAL SCOTTISH ACADEMY.

THE ARCHITECTURAL DRAWINGS.

As a matter of course, Architecture is meagrely represented in this Exhibition, even more so this year than usual, owing, doubtless, to the circumstance that during the last twelve months no new buildings of great importance have been inaugurated. Of designs for new churches there are few, and none of them remarkable. A "Competitive Design" for a small church, by David Robertson, is in the emasculated Norman style to which the architect adheres. Of different stamp is the "Church of the Holy Spirit, Distington, Cumberland," by Hay & Henderson; it consists of a nave with clearstory and aisles, with a muscular tower at the north-west angle. The style is late thirteenth-century Gothic. Archibald Macpherson exhibits a drawing of "Part of Interior of Church of the Sacred Heart, Edinburgh." This church was designed by one of the Jesuit Fathers, and is outwardly a plain Renaissance building, showing a pedimented front lighted by three semicircular-headed windows, and having a doorway with broken pediment. From time to time additions have been made to the interior fittings and arrangement, which are of a somewhat superficial description, although not devoid of pictorial effect. The drawing in question represents one of these, which appears to be a chapel screened off from the body of the interior. H. J. Blanc, in his "Design for New Church, Free St. Andrew's, Edinburgh," shows that, although his *forte* lies in the designing of Gothic churches, he can, when necessary, ably employ the Renaissance manner, which he has used in this instance as more appropriate for the site, and in better keeping with the surroundings than a Gothic building would have been. In the disposition of the various parts a picturesque effect seems to have been aimed at, but the small dome would be entirely eclipsed by the dome of the Parish Church of St. George, which is close at hand, and a spire would have been in a like position when in competition with that of the neighbouring cathedral. A tall slender campanile would have contrasted with and not come into competition with either dome or spire, and would have added a pleasing feature to the group which breaks the sky-line at the west end.

Mr. Blanc is more at home in his design for "St. Luke's Free Church, Broughty Ferry," which is in the Early French Gothic style which he favours. It differs in several respects from his former designs, especially as regards the spire,—and is satisfactorily balanced as regards the disposition of nave, aisles, and transepts, which group compactly.

Messrs. Seymour & Kinross append their names to a view of "St. Baldrid's Church, North Berwick: exterior view of New Church." This church is certainly not new; it was designed by and carried out under the superintendence of the late Mr. John Henderson many years ago. Probably Messrs. Seymour & Kinross may have made some alterations upon this edifice, but if so the drawing gives no clue to them. "Lochend Church," by Hardy & Wight, is a small country church with nothing remarkable about it; but we have a peculiar view of a portion of the "Interior of St. Giles Cathedral, Edinburgh," as it appears to Miss Jessie Frier, whose imagination has clothed the really cold raw stonework with warm tints and stains which time alone can give. We have greater reliance in the faithfulness of the painting of a portion of "San Giovanni, Siena," by W. E. Lockhart, where the fine bronze reliefs in the Early Renaissance marble font by Ghiberti and others are depicted with great skill.

The Scottish Baronial style does not lose its hold in the land of its origin, but continues to be the distinguishing mark of the greater number of mansions of any importance in Scotland. This is in part owing to its being a national style, in harmony with the scenery of the country, and partly to its pliability, which admits of the free introduction of new features and detail which tend to modify the severity which pervades the old examples of the style.

"Cavers House, Roxburghshire, as about to be altered and enlarged" by Kinnear & Peddie, affords evidence of both the old and new manner of treatment. In the one we find a high unpierced basement, large wall space, and small window lights; in the other abundant and often large open light, and yet the old and new coalesce harmoniously. "Portmore House, Peeblesshire," by David and John Bryce, is a large and stately new example of the style; and "Linplum, East Lothian," by Shiells & Thomson, shows that it can be effectively used on a smaller scale. "Addition to Mr. Buchanan's House, Oswald-road," R. Morham; the original house, as well as the large addition now made to it, was designed by Mr. Morham. The style has some affinity to the Scottish Baronial, but is so softened by an infusion of the English element as to give it a character of its own, which is, perhaps, more suitable for a villa in the immediate proximity of others of a common-place description than if a more declared style had been adopted. "Aros, erected for Professor George H. R. Macleod," William Leiper, architect, is decidedly English in character, and is a pleasing rendering of the half-timber manner of construction.

"Abington House, the Seat of Sir Edward Colebrook, Bart., M.P.," by Kinnear & Peddie, has also somewhat of an English character, being a gabled mansion with projecting wooden roofs, but the body of the building appears to be of stone.

The "Houses erected in West Craigmillar Park," from the designs of Archibald Macpherson, are tasteful examples of suburban villa residences decidedly above the common-place, and possessing an interest which distinguishes them from the characterless productions around them.

A "Residence, North Berwick," Hay & Henderson, architects, will form a picturesque addition to the many picturesque villas in this favourite sea-side resort; and G. Washington Brown's clever sketches of "Suburban Architecture" show terraces effectively grouped, mostly in the Queen Anne or Free Classic manner.

"Proposed Business Premises and Dwelling-houses, Stirling," by Seymour & Kinross, are designed in a decidedly Queen Anne manner,—picturesque, but rather thin and liney,—where stone is the material proposed to be used.

Knox & Hutton's "Competitive Design for Elgin Town Hall" is Italian in style, with arched windows and campanile, elegant of its kind, but not what we would look for in the North of Scotland. Mr. J. Dick Peddie exhibits the elevation of the "Scottish Provident Institution, St. Andrew's-square, Edinburgh,"—a building simple and undemonstrative, but which for many years has held its own as one of the ornaments of the city.

Mr. Scott Morton's "Drawing-room," Sydney Mitchell's "Hall and Staircases," and Alex. C. Dewar's "Dining-room" are all pleasing and effective examples of interior decoration. The "Banqueting Hall, Hallyburton House," a drawing of which is exhibited by Andrew Heiton, is, we presume, an ancient example; if not, it is a clever reproduction of a quaint interior of a bygone period. It appears to be of considerable size and height, has an open timber roof, and curious little galleries, &c.

A PROPOSED BRITISH SOCIETY OF TEXTILE INDUSTRY.

IN relation to this subject, Mr. B. H. Thwaite, C.E., has written a small *brochure* entitled "Arguments in Favour of the Formation of a British Society of Textile Industry."* Mr. Thwaite states in the preface that "The mechanical principles as arranged by England's inventive geniuses,—Watt, Arkwright, Crompton, Kay, and others,—for the production of textile fabrics, are now known to all the civilised nations which cultivate the arts of industry, and to the nation which most developes the intellect of its people and encourages the application of such intelligence for improving and cheapening the methods of producing textile and other manufactures belongs the commercial greatness of the future."

It is further suggested that the depression in the British trades is not altogether the result of causes of a transient character, but that constantly increasing foreign competition must also be credited as a by no means minor cause. Mention is made of the development of the textile industries in the United States, Russia, and other Continental countries, especially Germany and France, and it is pointed out that this industrial development in countries once supplied by us, must necessarily have a restrictive tendency on the demands for our manufactures. Further, that not only are these foreign countries becoming more and more independent of our manufactures; but they are now actually competing with us in foreign marts of which we once held the sole monopoly.

For years an elaborate and complete technological education has been given to the workpeople of the French and German industrial centres; and we see the result in the superior manufactured products emanating from French and German looms; and the prosperity of the manufacturing towns in Alsace and Lorraine is greatly due to the intelligent action and unity of the citizens. In each of the manufacturing centres of Alsace and Lorraine manufacturers, engineers, merchants, and chemists, have banded themselves together to form societies for the encouragement of the local industries. For instance, there is the Society of Industry of Verviers, and those of Fournises, Lyons, Mulhouse, &c. These societies of men who in their various occupations are ever on the watch for improvements, cannot but be of great service to industrial welfare. The description of the Industrial Society of Mulhouse in this pamphlet will be of interest to those interested in the future condition of our manufacturing industries.

It is only necessary to mention that the Mulhousian Society is very comprehensive in its aims for encouraging local manufacturing industries; there are committees for consider-

* Arguments in Favour of the Formation of a British Society of Textile Industry. By B. H. Thwaite, Assoc. Inst. C.E., F.C.S., Memb. de la Société Industrielle de Mulhouse, &c. Manchester: Emmott.

ing novel inventions, chemistry, theoretical and applied mechanics, subjects of public utility, statistics, commerce, fine arts and industrial designs. The Society possesses a school of design and engraving, schools for spinning, weaving, and chemistry, a cabinet of physics, museums of natural history, industrial designs, and of wood and steel engraving. The Society arranges art and industrial exhibitions periodically, and under its auspices there is an association for considering the means of preventing accidents by machinery. The committee on mechanics has lately offered a prize, consisting of a silver medal and 500 francs, for the best memoir on the means of preventing fires, and the construction of fire-resisting buildings; this prize has been awarded to M. Chenevier, architect, of Verdun, for an exceptionally valuable essay. As evidence of the thoroughness with which the society gratuitously educates its workmen, we quote from the pamphlet the following syllabus for one session:—

Spinning and Weaving School.

1. A complete Course of Spinning and Weaving, both theoretical and practical.
2. A Course of Elementary Mechanics.
3. A Course of Bookkeeping, and another on Mathematical Calculations required in Textile Manufactures.
4. A Course of Industrial or Applied Physics.

The new course will include the study of heat and its practical applications especially to purposes of industry; the movement of gases, as far as it relates to ventilation and the sanitary condition of workshops; electricity, and its practical application to industrials pursuits.

School of Chemistry.

A Course of Lectures on Metallurgy.
A Special Course of Lectures on the varied Chemical Processes involved in the great Industries.
A Course of Lectures on the Colouring Matters.
A Course of Lectures on the Jute Industries.

How pregnant with beneficial results to the arts of industry must such a society be, and how well calculated to foster and encourage the various industries over which its influence spreads, it is hardly necessary to remark.

Mr. Thwaite draws attention to the absence of a textile society in this country, and urges the formation of one, on the basis of the Society of Industry at Mulhouse, and in imitation of the Society of Chemical Industry, and of the Iron and Steel Institute. Although comparatively young, these two last-named societies have been of the greatest benefit to the respective industries they represent.

THE ARRANGEMENT OF BUILDINGS IN FLATS.

ARCHITECTURAL ASSOCIATION.

AT the ordinary meeting of this Association, held on the 29th ult., Mr. Cole A. Adams, president, in the chair, Mr. F. E. Eales read a paper on "The Arrangement of Buildings in Flats," the substance of which we printed in our last (see p. 351).

The Chairman, in opening the discussion, said that the question of buildings in flats was one which was forcing itself on the consideration of those who gave a thought to the enormous growth of the metropolis, and the scarcity of building land. At the same time, such buildings as those which had been referred to in the paper were beyond the means of men of moderate income. It might be possible to construct houses within a reasonable distance of the centres of life, and to let them at a profit, without going to any extravagance in the matters of site, ground-rent, or architectural decoration. Simple flats might be put up and let at rentals varying from 100*l.* to 150*l.*, so as to be within the means of men who at present were compelled to live in the suburbs. In the future the question of these buildings must come more and more to the front, and the planning of them would call for science of the very highest degree. The question of the preservation of light would be an important one, and in the future would, doubtless, call for some legislation. Under the Building Act the passages and stairs had to be made fireproof, but nothing was said about the rooms, and anything more terrible than a fire breaking out in such large buildings they could not conceive. He believed that one of these days we should learn a frightful lesson in connexion with some of the large hotels which had been put up. Before living in flats became general in this country Englishmen would have to a large extent to give up their insular prejudices.

Mr. J. A. Gotch proposed a vote of thanks to the lecturer. One of the disadvantages of the scheme that had been propounded to them was the very large rental. Besides this, many men would much rather pay the same amount of rent to get out into the country, with a house of their own, standing in its little garden. Invalids and old people, again, would never be able to get out from those tall houses to take the fresh air. They would not be able to walk downstairs, and would be too nervous to use the lifts. In Paris this kind of building seemed to suit the people very well; but there the same attention was not paid to sanitary matters as in this country. The whole French feeling, in regard to domestic matters, was essentially different to what it was here. The *concierge* did not mind living in a room having no communication with the open air, and with entirely borrowed light; whereas, in this country, we should not like to house any human being in that manner. He believed that we had some considerable time to wait before we got over our prejudices in regard to this style of living; and, in the meantime, flats should be erected to meet the opinions now prevalent.

Mr. Henry Lovegrove seconded the vote of thanks, and asked what would be done in the case of epidemics and fire. In the "Hyde Park Mansions" the living and sleeping rooms seemed to be somewhat mixed up; and it was not a good plan to have the water-closet close to the bedroom. He would like to know what was the cost per foot cube, as also the cost per room.

Mr. Tucker, late manager of Queen Anne's Mansions, remarked that in almost all the flats in London sound was heard to a great extent from the other floors; and he should like to know what precautions Mr. Eales would take in regard to this? People rushed into flats because of their many conveniences; but they often left them on account of their noise.* The question of fire was a very important one, and there should always be a back-staircase, so placed that under no circumstances would smoke affect both of the stairs. In the matter of elevators the Americans seemed to be far ahead of us, and in providing the necessary water for working the hydraulic elevators, they made an ample provision for fire. In the case of kitchens they should be separated from the other parts of the flat by what was called a neck passage, having a swing door at each end. With regard to epidemics, he knew an instance of small-pox being safely treated in a building of this description, and prevented from spreading by hanging up a piece of textile fabric saturated with a disinfecting fluid. Therefore, the point was one which need be no drawback to the existence of flats. The best roofs for these buildings were flat ones; and in America it was not an unusual thing to run the elevator right through to the roof, so as to take the people up with facility. The future of flats in this city almost entirely depended on the question of lifts. The top floors of large buildings were found to be best; the air was fresher, the light was better, and there was a total absence of sound and freedom from dust. The top flats ought therefore to command the highest rents. In conclusion, he believed if ten-roomed houses could be had at a rental of 7*l.* a room, they could be let in thousands.

Mr. Hunter said that in those countries,—such as France and America,—where buildings in flats were common, the conditions of family life were altogether different to what they were in this country, and he did not believe the system would be developed to any large extent here. The question of sound was also an important one, and was a great drawback to living in flats. Those who would be most likely to take up their residence in these buildings would be people without families, and those who had artistic and professional occupations, and who wished to be within a reasonable distance of their favourite centres. Therefore what seemed to be required would be small suites of rooms suitable for diminutive families and for bachelors.

The Chairman then put the vote of thanks, which was carried by acclamation.

Mr. Eales, in replying, said that the question as to contagion had been very well answered by Mr. Tucker. In the case of fire he did not know that two staircases would be of any more advantage than one. The fire would be inside the flat, and with that view he would make arrangements for having a constant supply of water, and to have a hydrant fixed at the end of the passage, with a short hose, say 150 ft. long, made of indiarubber, and lined with canvas. Thus in the case of fire breaking out in any room, it could be extinguished before it had time to spread. He did not believe that invalids would think of living in flats. He was unable to say exactly what would be the cost per room, but it would vary from 10d. to 1s. per foot. With respect to the matter of sound, 5 in. of concrete, with an open space of 4 in. between the top of the concrete and the sleepers deadened most of the sound. A flat roof might possibly be useful, but people would not use it much on account of the smuts. Cheap flats could only be put up in certain neighbourhoods, as it would be impossible to get ground-rents at the West End at a moderate rate. There was, however, no reason why they should not be erected in the thickly-populated neighbourhoods and places where the ground-rents were moderate. Flats were not suited for children. It was most disagreeable to be always meeting them on the stairs; and people with small children as a rule would not occupy the flats. He believed a flat that would rent at about 150*l.* a year would be the most useful in a place like London.

* The floors should be of iron and concrete.—ED.

ARCHITECTURAL ASSOCIATION.

VISIT TO THE BROMPTON ORATORY.

LAST Saturday, the 8th inst., the members of this Association paid their fourth afternoon visit this year, and the building inspected was the new Brompton Oratory at South Kensington (Brompton seems to be a place, like Battle Bridge, whose name is fast disappearing from the map of London). The building is the result of a "competition" in 1878, when Mr. A. Waterhouse, A.R.A., was appointed referee, and the design of Mr. Herbert A. Gribble, architect, was selected. This is not the first, nor the second visit that the members have paid to this important building. They were met in the nave at three p.m. by Mr. Gribble, the architect, and he at once proceeded to explain the details of the building. We have, on the occasion of a former visit, so fully described the general outline and dimensions of the structure that it will be unnecessary now to repeat them.* After surveying the nave the members perambulated the chapels, commencing with that of St. Patrick, the first on the right as one enters the Oratory. We may here mention that the building, though in a very forward condition, is still far from completion. The next chapel, that of St. Mary Magdalen, has a very fine altar-piece, which, Mr. Gribble said, had cost 1,100*l.*; it is built principally of Devonshire and Cornish marbles. A beautiful marble which has been introduced into it, and which Mr. Gribble described as a "Devonshire spar," has hitherto only been broken up and used as ships' ballast, but has never been used before for building purposes. It was found near Plymouth, and was, in his opinion, equal in effect to any Italian marble. It was a pity, he said, that we should go all the way to Italy to find marble when he would go to his own county of Devon, so near at hand. The walls of this chapel are to have mosaic panels (one of which is completed) representing scenes from the life of St. Mary Magdalen. The next chapel was the Calvary, with the organ-chamber over. The fourth was the Lady-chapel, containing a magnificent altar-piece, brought from a church, now pulled down, at Brescia, in Italy; its date is 1693, and when brought to England was in a very dilapidated state,—so much so, that it has taken two years to restore it to its present condition. Opposite to the Lady-chapel is the chapel of St. Philip Neri, where there is to be another large altar-piece erected, in Italian and other marbles, at the cost of the Duke of Norfolk, the estimated cost being about 5,000 guineas. A drawing was exhibited, showing this altar-piece,—which is now only dado-high,—as it will appear when completed. The other chapels,—those of the Seven Dolours, St. Wilfrid, St. Joseph, and the Sacred Heart,—are in a more or less progressive state. The nave is to be arched or vaulted over in Portland cement concrete; the internal walls are faced with Keene's cement for decorative purposes; the pilasters and

* See *Builder*, vol. xlii., p. 248.

dado are executed in polished Devonshire marbles. The organ, the whole of the parquetry, and the stalls of the choir (carved in walnut), have been presented by the Dowager Duchess of Argyll. The whole of the crypt or basement will be utilised for the heating apparatus. The works have been executed from designs by the architect by Mr. George Shaw, contractor. Mr. Joseph Seed is the clerk of the works, and Mr. H. Tinckam principal foreman to the builder.

Mr. Gribble concluded by saying that the Oratory was planned on the model of most of the Italian churches, and was the only one so planned in England, so that those who had no opportunity of going to Italy to see an Italian Church, had only to come here to see the model of one. He thanked the members for paying the Oratory this, their third, visit, and hoped when the building was completed they would not hesitate to come a fourth time.

TRADES' TECHNICAL EDUCATION.

THE ARTISANS' TECHNICAL ASSOCIATION.

AT the second ordinary meeting of this Association,—of whose aims and methods of procedure we have already given some account,*—held on Saturday evening last at No. 1, Adam-street, Adelphi, the Council presented their second monthly report, which stated that the various trade committees were getting into working order, and that arrangements are being made for holding two conferences as to the best means of furthering the work of the Association,—one consisting of trade-union representatives, and another to which the members of the Royal Commission on Technical Instruction, the Council of the City and Guilds of London Institute, members of Parliament, employers, workmen, and others are to be invited. The report also mentioned that a Decorative Art Committee is now in course of formation, and workmen interested are requested to communicate with the Secretary. An increase of eighteen members since the last meeting was held was announced.

Mr. C. T. Millis read a short paper on "Trades' Technical Education," from which we extract the following:—

From the theorist's point of view, artisans require only a sound scientific training to meet their wants in the matter of technical education. The desire of workmen, on the contrary, is, adopting the words of Mr. Magnus in his introductory address on technical education at the opening of the Finsbury Technical College, "to learn in the school very little more than they might learn in the shop: they only want to learn it more quickly."

With neither of these extreme opinions do I agree. My own is that the instruction given in a trade-class should supplement and not supersede the training of the workshop. The idea that a trade can be taught in a class-room I believe to be a delusion, and that thus to train workmen would be to make them less efficient, and their workmanship less perfect, and to destroy the reputation of the workmanship and workmen of this country. The student in a class learns for the most part the opinions of only one man; in the workshop the young workman gleans the opinions of many men, and also obtains knowledge of certain rule-of-thumb methods not always to be despised; the latter is only to a limited extent to be learned in the class-room.

In the trades' class-room, moreover, the number of tools and appliances is necessarily limited, and the amount of material small. Besides this, the sum total of the work that can be done in a trades' class by any one student can be but small. That the best manipulative training is that of the workshop is also, I think, generally admitted.

Thus in every way we see that the thorough training necessary to turn out a good workman is not independent of the factory. Even with the attempt to supersede the factory by the class-room, I am afraid that the apathy of employers as to the technical education of their young workmen would increase, and possibly entire reliance would be placed upon the training they received outside the factory.

Were training in the class-room indeed possible, workmen so turned out could only in very exceptional cases be the equals of those who, already engaged in a factory, attended a trade-class, and in that went through such a course of instruction as I now proceed to lay down. In confirmation of this view, I quote from a letter to the Secretary of the Royal Commission on Technical Education by Messrs. Varrall, Elwell, & Middleton, of Paris, in reply to an inquiry from the Commissioners as to the efficiency as workmen of the boys trained at the "École d'Apprentis." They write as follows:—

"In reply, we beg to say that we find the boys trained at the École de la Villette to have a good idea of drawing, which enables them to understand the working drawings used in the works, but they are by no means efficient workmen; we find that the apprentices who are brought up to the trade in our own works or others are, age for age, far superior workmen to the boys trained at 'La Villette.'"

I may add that I formed opinions similar to those just quoted when I visited the same school in 1878.

The instruction suitable for a trade class may for convenience be thus subdivided:—(1) mechanical drawing of the trade; (2) practical work of the trade; (3) physics of the trade.

(1.) *Mechanical Drawing of the Trade.*—By this I mean the drawing which bears the same relation to the trade that machine drawing does to that of the engineer. There would come under this heading, for the building trades, the making of working drawings and application of geometry to the trades; in the sheet-metal trades instruction in pattern-cutting, and so on. All students should be taught to make working drawings, and how to set out their work from these. Further, I would suggest that no practical work should be done in the class-room except from working drawings made by the students themselves. The work done would thus become an illustration of how to use the drawings. By such means students would gain the power of designing and planning out their work for themselves, and of forming an idea of how their work will look when made up, to the saving oftentimes of valuable time and material.

(2.) *Practical Work of the Trade.*—The instruction in this division should consist of lectures on the methods employed in the various branches of a trade, and of a certain amount of practical work in those branches in which, owing to division of labour, the introduction of machinery, and other causes, there is but little, if any, opportunity of learning in the workshop. We may take as examples,—for carpenters, handrailing; for bricklayers, brick-cutting; for sheet-metal workers, hollowing, raising, and planishing; and for plumbers, lead-working. It may also be advisable in some cases to give descriptions of the tools used in a trade. The work done should be neither elaborate nor large. Its character should be such as to give a knowledge of principles and practice sufficient to enable a student to follow out details, if possible, of work in the factory, where alone he will acquire dexterity. The carpenter need not in the class-room fit up a complete staircase, nor the bricklayer construct a complete arch; nor the sheet-metal worker make either a bath or an urn, or cover a roof. Portions only of such work are necessary for a student's wants, if already engaged in a trade connected with the class he is attending. We have a right to assume that a fair knowledge of a trade is either possessed by or is within the reach of any one claiming to be a member of the trade, and that such a one comes to the trade class to supplement his knowledge.

(3.) *Physics of the Trade.*—The properties of the various materials used in the trades would be dealt with here. The instruction should be by lectures and experiments; the latter to be carried out by the students themselves whenever possible. The question of the shrinking, warping, seasoning, &c., of the various kinds of wood would come under this head. So also would the preparation of mortars and cements, the qualities of the several kinds of bricks; the properties of metals, the treatment of metals in their several manufactured conditions; the properties of alloys, the composition of solders, and so on. The work in a class under this head may be termed its laboratory work.

Passing under review the training I am advocating for trade classes, it will be seen that a trade class-room suitable for such training would have to be partly drawing-office, partly workshop, and partly laboratory, and that instructors for such classes must possess a practical trade knowledge as well as a knowledge of the sciences connected with a trade. Technical teachers whose knowledge of a trade is principally book, knowledge, with a little science added, are not truly technical teachers at all. Nor, on the other hand, can courses of education in science alone be called courses of technical education. I make this remark, because, since technical education has become fashionable as a topic, it is most distinctly the fact that instruction in no way differing from what was formerly given as scientific is now often termed "technical," to which appellation it has no title whatever. With artisans themselves the power, in great measure, resides of ensuring that in this matter of technical education, the word of promise to the ear shall not be broken to the hope.

Apart from such trade classes as I am advocating, I hold that there is, and always will be, plenty of scope for the teaching of pure science, either simultaneously with or after the technical teaching, and that any idea to the contrary is a serious error. I lay particular stress on this as there undoubtedly is an impression abroad that with the establishment of such trade classes there will be but little room left for the teaching of science. My own opinion is that with the establishment of such classes the demand for science teaching will steadily increase.

Courses of Instruction for Artisans.—My experience as a student and a teacher has impressed upon me the need for some sort of guidance to the workman as to the studies he should take up. Particularly was my attention drawn to the matter whilst acting as secretary to the late Artisans' Institute. At the Finsbury Technical College and the Polytechnic I am glad to note that courses of instruction are laid down, and that every inducement is offered to the student to go through the course that is allied to the trade in which he is engaged. I give below the subjects that, apart from attendance at the actual trade class, should be taken up by carpenters, bricklayers, sheet-metal workers, and plumbers respectively, in the order in which, I think, they should be studied. Here, however, students require a word of caution. They must be careful not to take up more subjects in any one year than they can comfortably get through, or they will find themselves unable to keep up with their work, and will become disheartened instead of deriving pleasure from it.

It is assumed that before taking up any course whatever students have a fair primary education. It will be seen that practical geometry forms one of the subjects in each course given, and I should strongly recommend that even if other subjects have to be passed by, practical geometry should not be passed by, seeing that, with a knowledge of this, the drawing connected with any trade becomes more interesting and better understood:—

Carpenters.	*Bricklayers.*
Freehand Drawing.	Freehand Drawing.
Practical Geometry.	Practical Geometry.
Elementary Mathematics.	Elementary Mathematics.
Building Construction.	Building Construction.
Elementary Applied Mechanics.	
Sheet Metal Workers.	*Plumbers.*
Freehand Drawing.	Freehand Drawing.
Practical Geometry.	Practical Geometry.
Elementary Mathematics.	Elementary Mathematics.
Inorganic Chemistry, or	Inorganic Chemistry.
Practical Metallurgy.	Building Construction.

It is often urged against giving courses of instruction to artisans that such courses are unnecessary and superfluous, and will make men neither good workmen nor better off. The answer to this is that, on the contrary, a good general knowledge is calculated to make men better both as workmen and as men, and those possessing such knowledge are likely to be pecuniarily better off as well as more independent. Moreover, owing to the great strides general education is making in this country and on the Continent, a more liberal course of instruction for artisans than formerly given has become compulsory, and necessarily it must be in those subjects which are more or less closely connected with the several trades.

That men who have reached middle age, or have family or other ties, will take up such courses of instruction is not to be expected; it is, however, to be looked for that young men and apprentices between the ages of fourteen and twenty-three should devote two or three evenings a week to the work of becoming acquainted with the various subjects connected with their trades. Much pleasure as well as advantage is to be derived from such study

* See *Builder*, pp. 144, 175, *ante*.

and they will certainly not be any worse off in possessing a wider knowledge than that which is absolutely necessary to enable them to earn a living. I am well aware that the wages side of the question is an all-important one; but a still nobler side is that of self-improvement, and I would strongly impress it upon workmen who are themselves unable to take up a course of instruction or attend trade classes, that they should encourage the younger men and apprentices, in whom, indeed, our hopes rest in the work of technical education, so to do. Members of this association cannot better aid the cause than by giving the like advice to those whom they represent. With this effectually done we shall no longer have to lament the small attendance at our various classes,—small indeed as compared with the number engaged in the various trades for which the classes are formed. In this respect, however, it is gratifying to find that there has been an improvement in the last two or three years.

ARCHITECTS' BENEVOLENT SOCIETY.

ANNUAL MEETING.

THE thirty-fourth annual meeting of the Society was held on Wednesday afternoon last, in the Rooms of the Royal Institute of British Architects, Conduit-street, Mr. John Whichcord, President of the Society, in the chair.

Mr. W. H. White, hon. sec., read the report, of which the following is a summary:—

During the past year there had been fewer applications for relief than in 1882, and the grants had been less in total amount. In 1882 the sum of 527*l.* was given away to 36 persons; but in 1883 the sum of 479*l.* was given to 28 persons. But the subscriptions of contributors had increased, and in 1883 they amounted to 344*l.*, as against 323*l.* received during the previous twelve months. At the beginning of the past year the funded property of the Society consisted of 5,550*l.*, invested in the New Three per Cent. Annuities, while a sum of about 90*l.* remained on hand for the purpose of further investment. A donation of 500*l.* was also received from Mr. Samuel Page, and this unexpected increase partly induced the Council to consider the advisability of purchasing Stock likely to afford a larger interest. They had consequently purchased 4,000*l.* of London and North-Western 4 per cent. Debenture Stock, but still held 1,500*l.* in the New Three per Cents., while 90*l.* of donations still remained to be invested. As the result of an appeal made last year, nine new subscribers had been obtained, and donations received from Messrs. R. W. Edis, G. Godwin, S. Hill, J. Jennings, R. Keirle, R. P. Pullman, E. C. Robins, J. E. Saunders, L. Solomon, E. J. Tarver, and J. G. Turner. The Architectural Association had become an annual subscriber of 10*l.* 10s., and the Ecclesiastical Surveyors' Association had contributed a like amount during the past year. Donations had been made by the Liverpool Architectural Society and the Nottingham Architectural Association, and by the Worshipful Company of Carpenters, to which latter body a special appeal was made. A correspondence opened by the Association with the various architectural societies in the United Kingdom had resulted in several gentlemen becoming the representatives of this Association as local honorary secretaries in several districts of the country. The following had accepted the duty, viz., the hon. secretary of the Birmingham Architectural Association, for Birmingham; Mr. John McLachlan, for Edinburgh; Mr. John Honeyman, for Glasgow; Mr. E. Dodgshun, for Leeds; Mr. Aldridge, for Liverpool; Mr. W. Jackson, for Leicester; Mr. John Holden, for Manchester; and Mr. T. Oliver, for Newcastle. The Council would be glad to make similar appointments in other districts, especially in the north-east and south-west of England. The advice and assistance afforded already by these gentlemen lightened the responsibility of the Council in granting relief to persons at a distance, and increased the power of the Society in making known its needs and objects. The Council desired to thank the Institute for the assistance rendered; and to acknowledge the aid afforded through the inquiries of the Charity Organisation Society.

The President, in moving the adoption of the report and accounts, said that, although the report was hopeful and encouraging, it would be far more satisfactory when they could report a fund of 10,000*l.* invested. There was little to remark upon, except to notice the change in the nature of the investment of part of the funds. The Council considered that the change they had made would enable them the better to meet some of the painful cases that occasionally came before them. The pecuniary result of the change would be to increase their income by 20*l.* or 30*l.* a year. Another matter of congratulation was the help obtained from the local hon. secretaries. The result of that, he hoped, would be to increase both the funds of the Association and the sympathy felt in its work. From the prominence of those gentlemen in their respective localities, he hoped they might anticipate a great deal of good to the Society. He could only commend the Association's work to all the profession, regretting that not one-fourth of the members of the Institute had yet become subscribers.

Mr. E. N. Clifton seconded.

The resolution was adopted *nem. dis.*

The Hon. Secretary then reported that the following gentlemen retired from the Council, having served three years, viz.:—Messrs. Gruning, I'Anson, Scamell, Wells, and Wyatt. The Council recommended the following gentlemen to fill the vacancies, viz.:—Messrs. A. Waterhouse, A.R.A., E. N. Clifton, Cole A. Adams (President of the Architectural Association), W. Emerson, and Lewis Solomon.

The recommendation was adopted, and with that alteration the president, council, and hon. officers were re-elected.

Mr. Hebb and Mr. B. E. Ferrey were elected auditors for the ensuing year.

Mr. E. N. Clifton moved, formally, a vote of thanks to the President and Council. Mr. Florence seconded. In reply, on the motion being carried, the President said they were all animated with a sense of duty in advancing the interests of the Society, but the bulk of the work fell on the honorary secretary and treasurer and the auditors.

A vote of thanks to the auditors of the past year (Messrs. J. G. Turner and R. St. A. Roumieu), was then carried, on the motion of the President.

Mr. Rickman proposed a vote of thanks to the Royal Institute of British Architects for the use of the rooms and for the assistance given to the Society. He thought the fact of fewer grants being made in the past year showed that the profession was not so badly off as formerly, but this was only a reason why they should receive additional subscriptions.

This motion having been seconded by Mr. Scamell and carried, the proceedings terminated.

BRISTOL MASTER BUILDERS' ASSOCIATION.

THIS Association held its annual meeting and dinner at the Talbot Hotel, Victoria-street, Bristol, on Thursday evening, the 6th inst., at which there was a large attendance. Mr. A. Krauss, the president of the Association, occupied the chair, the vice-chair being filled by Mr. George Humphreys. The company included Messrs. W. Berson, W. H. Brown, J. Bastow, J. E. Davies, W. H. Phillips (secretary), T. J. Scoones, J. Thorne (treasurer), G. H. Perrin, (Taylor & Low Bros.), R. Bancroft (Bancroft & Harris), W. Brock (Brock & Bruce), H. A. Force, C. W. Weeks (King Bros.), T. K. Talland, W. H. Cowlin, E. J. Hatherly, J. Wilkins, and others. After the usual toasts,

Mr. W. H. Phillips, the secretary of the Association, read the annual report, which stated that few matters of special importance had engaged the attention of the committee, but all subjects that seemed to affect the trade had been carefully watched. In common with other builders' associations, the committee had memorialised the House of Commons in opposition to some of the provisions of the following Bills:—The Steam Boilers (Persons in Charge) Bill, and the Employers' Liability Act. The clauses relating to the buildings contained in the Omnibus Bill promoted by the Bristol Corporation were carefully considered by the committee, but it did not appear desirable to take any action. Each member should give the earliest intimation to the secretary of any subject likely to be of general interest or benefit to the trade.

The Chairman, alluding to the report, mentioned that the effect of the Steam Boilers Act would have been that every employer using steam power would have been obliged to keep a certificated man in charge, and the members of the Association would understand to what an extent that would have affected the trade. In the event of the certificated man being ill on a Monday morning, they would be obliged either to employ another man with a certificate, or suspend the use of the steam. Referring to the Employers' Liability Act, he urged upon employers the importance of insuring themselves against accidents in the Master Builders' Society. Having mentioned that he had had to fight a claim for 1,200*l.*, which had been reduced to 200*l.*, the president moved the adoption of the report.

The vice-president (Mr. Humphreys) seconded the motion, which was adopted, and Mr. Krauss, Mr. G. H. Humphreys, and Mr. J. Thorne were appointed respectively as president, vice-president, and treasurer for the ensuing year.

INTERNATIONAL HEALTH EXHIBITION.

THE Council of the Society of Arts announce that they are prepared to award the following prizes in connexion with the International Health Exhibition:—

Under the John Stock Trust, a Society's Gold Medal or 20*l.* for the best example of sanitary architectural construction, Classes 20, 28, 29, 30, 32.

Under the Shaw Trust, a Society's Gold Medal or 20*l.*, for the most deserving exhibit in Classes 41, 42, 43, and 45 (relating to Industrial Hygiene).

Under the North London Exhibition Trust, a Society's Gold Medal or 20*l.*, for the best set of specimens illustrating the handicraft teaching in any school—Classes 49 and 50.

Under the Fothergill Trust, Two Gold Medals (or two sums of 20*l.*), one for the best exhibit in Class 27 (Fire-Prevention Apparatus), and one for the best exhibit in Class 26 (Lightning Apparatus).

From the Trevelyan Prize Fund, Five Gold Medals (or five sums of 20*l.*) for the best exhibit in each of the following Classes,—2, 3, 6, 7, and 11 (all comprised within Group 1, "Food").

Each prize will be a Gold Medal, or the sum of 20*l.*, at the option of the recipient.

The Council propose to ask the juries in each class to recommend for their consideration either two or three exhibits which they might consider deserving a prize.

INTERNATIONAL MACHINERY EXHIBITION, VIENNA.

AN international exhibition of motors and implementary machinery for the smaller industries will be held at Vienna, in the localities of the Imperial and Royal Horticultural Society, by the Industrial Corporation of Lower Austria, under the Protectorate of H. I. and R. H. the Archduke Carl Ludwig.

The exhibition will be opened on the 24th of July, and will close at the latest by the 12th of October, 1884, and will contain the following groups:—I. Motors (up to 3-horse power). II. Transmitters. III. Tools, implementary machinery, and working appliances. IV. Physical and chemical apparatus. V. Means of reproducing graphic impressions. VI. School and teaching appliances for technological instruction.

Applications should be addressed not later than the 1st of April, 1884, "*An den Niederoesterreichischen Gewerbeverein I. Eschenbachgasse 11 Wien, Austria,*" on forms obtainable from the above-mentioned quarter.

There will be no prizes awarded, but each exhibitor will receive a memorial medal and certificate of participation at the exhibition.

Motors and machinery will be examined and tested by a special Commission, which will give certificates of the results of such trials.

DUTIES ON STONEWARE PIPES IN FRANCE.

THE Union of French Ceramic Manufacturers recently appointed a committee to examine the above question with a view to allowing the French industry to compete more successfully than at present with imported articles. Amongst the matters brought to the notice of the Minister of Commerce is the fact that stoneware pipes, instead of being taxed according to paragraph 323 of the General Tariff, are allowed to enter free of duty by a decision of the Consulting Committee, made in 1863. In claiming a readjustment in this respect, the committee urges that French manufacturers are entitled to protection on account of certain disadvantages in their industrial position. It is also remarked that trade has materially changed since the decision in question was made in 1863.

Art Needlework.—An exhibition of ecclesiastical embroidery will be open at the Royal School of Art Needlework, in Exhibition-road, on Monday, March 24th. The private view will be on Saturday, the 22nd.

ASHBURNHAM HOUSE AND WESTMINSTER SCHOOL.

CARPENTERS and bricklayers are still busy upon the alterations and repairs which were taken in hand several months ago, after the deaths of Mr. Turle and the Rev. Lord John Thynne, sub-dean. The house of the former,—whereof we lately printed a sketch,*—is being replaced with a set of school class-rooms in red brick, with stone dressings. This new building stands between the big school-room (the monks' dormitory) and the eastern wing of Ashburnham House. Its site is that of the Convent Privy Dorter or Necessarium communicating with the Great Dormitory by the plain round-headed doorway that recently was brought to view. It is in violent contrast with the picturesque irregular group of gables and dormers which characterised its predecessor, dating, as is believed, from the middle of the sixteenth century, but retaining many relics of the earlier Norman fabric. A new arch is set in front of the ancient wagon-headed opening made through the former Misericorde wall. In this manner we lose all the effect of a favourite old corner; while the view is changed of the "dark entry" from Little Dean's-yard to the Great Cloisters beyond. For the lodge-entrance with its flanking walls, in front of the house, are substituted a dwarf wall and piers capped with stone balls, supporting a somewhat light but elegant railing and gate. The summer-house that stood in the back garden against the interior of the Refectory wall, and which was attributed to Inigo Jones, has disappeared. The beautiful drawing-room and one or two other apartments of Ashburnham House are temporarily occupied as school-rooms. We understand, however, that as soon as the new buildings are completed, the central portion will be fitted for the purposes of the head-master and his coadjutors. The ante-room is decorated afresh and will serve for the school library to be established in honour of Dr. Scott, lately head-master.

MONUMENTAL ARCHITECTURE AT HAMBURG.

THE metropolis of North-Western Germany has lately augmented its public buildings by the erection of the Criminal Courts, the enlargement of the Exchange, and other works of an imposing character. Preparations are now being made for the building of a Museum of Natural History. The structure is intended to receive extensive zoological, mineralogical, geological, and palæontological collections, and is to contain two lecture-rooms. The cost is not to exceed 45,000*l.*

A competition will take place in two divisions, one of which (according to the *Deutsche Bauzeitung*) will be open and general, while the other will be limited to five designs chosen from those submitted in the preliminary test. These five plans will each receive a prize of 50*l.*, and the authors will have to declare within fourteen days whether they desire to participate in the subsequent competition, arrangements being made as to the replacing of such as wish to retire before the final stage is reached. During the four weeks succeeding the preliminary competition, the commission and the judges will decide whether the original building programme will be maintained in its original form, or modified in accordance with the ideas gained from the preliminary test. The plans (ground-plans, façades, and sections) are to be sent in anonymously by the 30th of April. They are to be on the scale of 1 : 200, and are to be accompanied by descriptive reports and drawings in perspective when such are desirable.

The competitors whose works are selected for the final competition have a further time of six months given them to complete their labours, for which they receive a sum of 200*l.* They have to furnish ground-plans, façades, and sections on the scale of 1 : 100, and details on the scale of 1 : 25. These are to be accompanied in each case by a special descriptive report and an estimate of cost, with calculations of quantities, and quotations for unities of measurement. According to the programme, the author of the design selected will receive a further sum of 200*l.* (thus completing 1 per cent. on the estimated cost) in the event of the plan not being executed. If the work is executed a further remuneration of 3 per cent. will be given; thus in all 1,800*l.* A public exhibition will take place of the five designs admitted to the final competition, and the judges will publish their award with explanatory remarks.

* See *Builder*, vol. xlv., p. 520 (October 20th, 1883).

SALE OF THE MATERIALS OF TOTHILL FIELDS PRISON.

DURING the present week the first portion of the building materials of Tothill-fields Prison, Westminster (upon the site of which,—about five acres in extent,—a new Roman Catholic cathedral of large dimensions is, as was mentioned in our last, about to be erected), has been sold by Messrs. Horne, Son, & Eversfield. The sale commenced on Monday, and was concluded on Wednesday, 445 lots having been disposed of in the three days. There was a numerous attendance of dealers in building materials at each day's sale, and what were considered fair prices for the various materials of the prison ruled. The first day's sale embraced the materials of the infirmary and reception cells, the north side of the officers' quarters, and six other of the prison buildings, 183 lots having been disposed of during the day. The second day's proceedings consisted of the sale of the materials of the officers' quarters on the south side, those of the oakum stores, three buildings, the materials of the garden (24 lots) consisting, amongst other lots, of 7,984 ft. of granite pitching, and all the trees, shrubs, and turf. The last day's sale consisted of the materials of the chapel, the governor's residence, the kitchen, and the inside and outside lead in the several buildings, said to weigh 190 tons. This was divided into 36 lots, and closed the sale. The total proceeds of the three days' sale amounted to £5,300, the lead alone, we understand, realising £2,300. The buildings sold during the three days are estimated to contain 10,000,000 bricks. The materials of the remaining buildings and the prison enclosure walls, the latter being between 2 ft. and 3 ft. in thickness and about one-third of a mile in length, will be sold some time in April next, and it is expected that the site of the prison will be entirely cleared and ready for the commencement of the intended cathedral building not later than the end of July.

WESTMINSTER ABBEY:

PROPOSED "SOUTH TRANSEPT."

SIR,—I am very unwilling to inflict another letter upon you on the subject of the new south transept of Westminster Abbey, but Mr. Somers Clarke's challenge is too direct to admit of my passing it over in silence. It is easy, of course, for one so exceptionally familiar with the precincts as he is, and residing in Dean's-yard, to point out inaccuracies on minor points in one who, like myself, has had no means of access to the buildings in question, and who, consequently, is obliged to depend wholly on written and published documents for his information. There is nothing, however, in Mr. Clarke's criticisms that, as far as I can judge, affects the main points at issue, and I shall not therefore attempt to notice them in detail; they are not such as have any real bearing on the more important questions in dispute, or can really affect the conclusions I have arrived at.

Since I wrote last I have visited the Infirmary Hall, and can now speak from personal knowledge. It is a room about 32 ft. long by 22 ft. wide,—the size of an ordinary London drawing-room,—covered by a roof of an ordinary Mediæval barn. Its outer walls, so far as they are visible, were rebuilt from the foundation by the late Sir Gilbert Scott, and the roof put into a thorough state of repair. What that means we generally know too well, but how much of the old roof remains I have no means of knowing. It now forms an appropriate vestibule to two second-class residences of minor canons. If it stood alone no one would propose to meddle with it, but if its existence is pleaded as a bar to an important public improvement, I, for one, would advocate its removal. It has no architectural beauty, and in its present state very little archæological interest.

I have also gained access to the private garden in which the remains of St. Catherine's Chapel are situated, and seen enough to prove that, when the Ordnance survey was made in 1871, it represented the state of the garden as it then occupied the site with perfect accuracy. Mr. Hillman's letter, in your last issue, details what has since been done in the way of excavations. Two rude stones forming part of the foundations of the altar were discovered in the trenches, and consequently mark its site. The removal of a portion of a house has revealed a large fragment of the southern wall of the choir, but in a dreadfully ruinous condition, and the site of the pillars of the nave has also been ascertained, and corresponds with the one that stands in a corner on the south side. Every vestige of the chapel on the north side has been removed, and a commonplace modern residence recently erected on its site. If these remains, insignificant though they are, were situated in the country, and in any locality where their site was not wanted for other purposes, I would be the last to recommend their being touched; but I cannot conceive any but the most fanatical antiquary insisting that their preservation should be a bar to a great public improvement, assuming that it is agreed to be such on other grounds. A brass plate fixed on the floor of the new building would mark the spot where the altar of the chapel once stood, with more distinctness than the present two stones, and serve to recall the dispute between the two archbishops, and its locality, more clearly than can be done by the present half-buried fragments. Their disappearance would hurt the feelings of no one. Of the numberless people who annually visit the Abbey, not one in 10,000 ever heard of their existence, and fewer still have ever seen them. Till very recently the bulk of them were buried under 3 ft. or 4 ft. of rubbish, or hidden by modern erections. The consequence is, that if they disappeared to-morrow,—which, but for this stir they probably would have done, under some new second-class residence,—few would have been the wiser or the worse.

This is not, of course, the place where one can enter on the question of how St. Stephen's Chapel was roofed, but I can only say that when Mackenzie's work on the subject appeared in 1846, I went very carefully and, I fancied, exhaustively, into the whole question, and examined all the available evidence on the subject. The conclusion I arrived at was that the chapel was one-storied and covered with a hammer-beam roof, similar in principle to that afterwards adopted for Westminster Hall. Of course it was adapted, as Mr. Clarke says, to one only 33 ft. in width, but, as the Mediæval architects afterwards applied its design to one 68 ft. in width, he must have a much meaner opinion of the profession than I have if he believes that an architect cannot be found who can design one that would be appropriate for a roof 50 ft. span. It is, however, unfortunately the rule that what has been done in the Middle Ages may and can be reproduced, but what has not been done dare not and must not be attempted. It is this narrow archæological view of the art that pervades all Mr. Clarke's criticisms on my proposals. In making the sketch you published, I purposely avoided copying the dimensions of the Abbey, either in elevation or in plan, but proposed something more spacious and of larger parts, more worthy, it seemed to me, and more characteristic, of the age in which we live.

It is, I conceive, the narrow archæological view generally taken by architects of the beautiful architecture of our forefathers that is bringing it into disrepute; and, in a notable instance, rendered Mr. Street's new Law Courts the utter failure they are now generally admitted to be. But by a larger and bolder treatment I believe the new south transept, without being a copy or pretending to belong to the thirteenth century, might be made a thing of beauty and worthy of the nineteenth. If the scheme now proposed were entertained by those who have the power to direct the movement, I am not without hopes that an architect may be found who can and will carry this design out, so as to render it worthy of the Abbey to which it would be attached.

JAS. FERGUSSON.

20, *Langham-place*, March 12, 1884.

*** We cannot print more letters on this subject at present.

Lecture at the British Museum.—Professor Hodgetts, whose previous lectures on Anglo-Saxon work at the British Museum we reported, is to deliver a further course of six lectures in the Anglo-Saxon Room, on Wednesday afternoons, commencing the first Wednesday after Easter. The subjects of these lectures will be, "The Jar," "The Casket," "The Horn," "The Rune," "Illuminated MSS.," and "The Coin."

THE BRITISH MUSEUM.

SIR,—Apropos to your recent article [p. 187, *ante*] upon the Kouyunjik Gallery and its new catalogue, will you permit me to say that I trust the authorities of the Museum will see their way to publish other catalogues of the various antiquities of the same kind, though, it may well be, not quite so minute in description? Also that the Museum may be opened to the public on week-day evenings, if not on Sundays, as the present plan of closing at four p.m. effectually excludes all students and others who have their living to get. No one connected with the building trade, for instance, can ever get a chance of seeing the treasures the Museum contains unless he takes a special holiday for the purpose. There can be no question now of the practicability of lighting the building without risk of fire. That question is absolutely settled, and electric arc lights are used in the building. It now only remains to introduce the incandescent lights, and to keep the place open in the evenings to enable the great bulk of our people to become acquainted with its contents. Mr. Frith, R.A., in a recently-published letter, suggests the same thing for the National Gallery, which, he says, ought to be opened in the evenings to enable a busy man like himself to study the old masters, time for which he cannot afford in the short light of a winter's day.

I take this opportunity of mentioning what appears to be little known, and may be of interest to many of the readers of the *Builder*. In a conversation I had with Mr. Budge, Dr. Birch's able assistant, at the British Museum, during the autumn of the past year, that gentleman introduced to my notice a series of translations into English of Assyrian and Egyptian inscriptions in the collections of the Museum, the Louvre, and other places. These are published by Bagsters in twelve small volumes, and will be found to be exceedingly interesting to students of ancient history, and convey to the mind better ideas of the condition of the human race in very early times than it is possible to obtain from the earliest writers. I am sure these only require to be known to be appreciated, and, as there is plenty of material to form another series, it is to be hoped the publishers will be well supported in their venture. The volumes are issued at the low price of 3s. 6d. each.

E. GRIMES.

Birmingham, March 10, 1884.

THE QUARRIES OF CAEN.

SIR,—As some account of these famous quarries may be acceptable to your readers, I send you a description derived from a recent visit to the spot. They lie about two miles to the south of Caen, in the immediate neighbourhood of the village of Allemagne, and consist of an extensive ridge of rocks overlooking the valley of the Orme, and stretching far southwards. The upper surface is a level plateau in a high state of cultivation. In ancient times the stone was excavated from the face of the rock or cliff, vast catacombs being thus formed. Later on, however, shafts were sunk in the plateau or fields to the depth of 50 ft. to 70 ft., out of which the stone was hoisted by windlasses. Of this kind was the quarry I visited the other day. Not caring to descend by the steep ladder, I got one of the workmen, who was furnished with candles, to lead me by one of the openings on the face of the rock to where the quarrymen were at work. The passage is from 20 ft. to 25 ft. wide and 15 ft. high, and is excavated in a seam which furnishes the most even-grained stone. The upper and lower layers are said to be of a different geological formation of uncertain texture, and sprinkled with pebbly blocks of various size, which prevent the stone from being sawn. The seam which is at present being worked is comparatively soft and uniformly even, being free from cracks and faults, and is, moreover, of a rich fawn colour. The blocks vary according to the dimensions required, the largest containing 5 cubic yards, which the strength of the crane and chains is not allowed to exceed. The workman begins by cutting two deep channels in the face of the rock in a perpendicular direction, about 4 ft. or 5 ft. in length, and the same in depth. He then cuts a similar channel 4 in. wide horizontally at the base of the block, leaving it attached at its top and hinder surfaces. He then cuts a channel horizontally along the top, about 6 in. in depth, into which he inserts wedges. These are driven in by degrees until the block is separated from the rock above and at the back, and falls upon the bottom prepared for it. It is then withdrawn by means of levers and placed upon rollers on which it is conveyed to the shaft to be lifted out by the crane upon a wagon for transport. A workman takes two days to cut the channels of average-sized blocks, and his earnings are 3 to 4 francs a day. The quantity of stone exported from Caen is very considerable, amounting, I was told, to from 200 to 300 shiploads a year. It is sent to many parts of the world, even as far as America; and it forms, indeed, one of the principal industries of Caen. The quarries being so near at hand it is needles to say that the town of Caen is built exclusively of stone. The modern public buildings are constructed of very large blocks, which are as thick as the walls they form. The stone lasts well here. The old churches are nearly as fresh as they were when built, and have suffered little from decay occasioned by the weather. They have no rule here for laying the stones of the building as they were bedded in the quarry.

W. H. LANGHORNE, M.A.

Caen, March 8, 1884.

MEDIÆVAL ARCHITECTS.

SIR,—So little is known relative to the architects of the thirteenth century that perhaps you will allow the question to be put through the pages of the *Builder*, as to whether any of its readers may be able to shed additional light on the history of the man whose name is found mentioned on the dates given in the accompanying list. JAS. THOS. IRVINE.

Mount Pleasant, Lichfield.

1205. Magr. Elyas de Derham, rector of the Church of Meauton. Rotuli definibus, p. 271.

1207. E. de Derham, executor of H., Archbishop of Canterbury.

1209. Helias de "Berham," Walpole supposes to be the same as Elyas who repaired King John's Palace at Westminster that year, who certainly was an architect.

(Year doubtful.) Elya de Derham, Seneschall to Bishop Josceline de Wells and also a vicar at Wells.

1213. Magro. Elye de Derham about King's Works.

1218-1234. Helias was a Canon at Wells.

1220. Elias de Derham, Canon of Sar., architect or master of works, Salisbury Cathedral, was present at the first celebration of divine service at Salisbury Cathedral in 1220.

1232-1233, 1235-1236. Elyæ de Derham is mentioned in connexion with Winchester Castle Works. 17 H. 3 and 20 H. 3.

About 1243. A John de Derham at Wells.

EXHIBITION OF WORKS IN WOOD.

SIR,—Will you kindly allow me to call the attention of your numerous readers to the Exhibition of "Works in Wood" about to be held under the auspices of the Carpenters' Company and the Joiners' Company of the City of London at the new hall lately erected by the former company, at the corner of Throgmorton Avenue and London Wall?

It is well known that these two companies had for many years the entire control, and, indeed, monopoly, of the two crafts whose name they bear, and it is doubtless owing to this fact that British workmen, and especially Londoners, attained to their rare excellence in those branches of art. The days of restriction and search for bad workmanship are past and gone; but there seems no reason why the spirit of emulation, so rife in these days, should not be evoked to produce similar results.

These two Companies have therefore determined to invite British workmen generally to compete in the several branches of these crafts, and have offered a number of prizes, details of which can be had by application to the Clerk of the Carpenters' Company. The number of responses received warrants the belief that there will be a good collection of articles of interest, of which a large number will be made for the occasion.

I hope that many more of your readers will still find time to prepare something for the Exhibition, and as it is proposed to form a Museum of every kind of illustration of both carpentry and joinery, the Committee will be much gratified by receiving, merely for the purpose of exhibition, any models of drawings of existing or ancient works in wood which would be of interest in showing the kind of work done both in the olden and the modern times.

The Exhibition will be opened about the middle of May, and will continue open for about three weeks, from eleven o'clock in the morning till five o'clock in the evening on four days in the week, and till nine o'clock on Wednesdays and Saturdays.

WILLIAM WILLMER POCOCK,
Master of the Carpenters' Company,

VICTOR EMANUEL MONUMENT COMPETITION.

SIR,—Referring to your illustrations of two of the selected designs (issue of 8th current), I would note a remarkable departure from the stipulations of the competition in Sig. Sacconi's design. It was an express requirement that the upper central building should be 29 mètres high in centre and 24 mètres at sides or wings. This has been in the main carried out in Sig. Bruno Schmitz's design, to his evident disadvantage, as I, at least, consider the "Sacconi" design the better of the two. It is not easy to see why such a condition was imposed if not intended as binding. I made many inquiries during the progress of the competition as to the reason for this, but could get no explanation, and I quite see now that my design was made at a disadvantage. Possibly I could have disregarded the condition imposed, but as it was one of a very few express stipulations I did not think myself at liberty to ignore it.

ANOTHER COMPETITOR.

PIPES *v.* FAÇADES.

SIR,—In your issue of the 8th inst. we notice a letter from Mr. W. P. Buchan, in which he claims,—or, rather, from which he *would* claim,—the invention of "disease-germ filter" in conjunction with exhaust ventilating pipes from house-drains, sewers, &c.

Now, as we adopted this plan, and have had it in practical operation for many months, we can inform Mr. Buchan that the result has been satisfactory, but he must not claim it as *his* patent.

We may add, we first thought of using sponge for the purpose, next asbestos, but we finally decided to use coke, which was kept saturated with a powerful disinfectant.

We gave the preference to coke, considering it cheapest, and more durable than sponge and cotton.

BANNER BROS. & Co.

P.S.—We have not patented this plan, but feel it necessary not to allow Mr. Buchan's letter to pass unnoticed by us.

BELGIAN GRANITE.

SIR,—I presume that the stone mentioned by Mr. Stagg [p. 356] is the same as that known by the same name in Berlin, where it is much used for the plinths and basement facings of several of the most important public buildings; for instance, the Institute of Natural Sciences, the Imperial Bank, the Art Trades' Museum, and the New Courts of Justice at Moabit, where it is unpolished.

It is also known as Belgian marble, because it can receive a polish, and as Belgian limestone, the latter correctly. It is not an artificial stone, as Mr. Stagg supposes; neither is it a granite, though it is called by that name, owing to its excessive hardness, large and variable grain, and possibly also from its colour, which, when worked, is a deep blue grey. It is, in fact, a carboniferous limestone of good colour, very hard and durable, well suited to massive monumental or plain work.

HUGH MCLACHLAN.

COST OF PRIMARY SCHOOLS.

SIR,—Is there any recent Parliamentary or other return giving the cost of public elementary schools in different parts of the country? A few years,—perhaps three,—after the Elementary Education Act was passed, a return was made to Parliament which dealt with the work done up to that time in a very interesting way. In the annual reports of inspectors there are occasional instances of excessive cost, but neither the inspectors nor the statistics in the Annual Report of the Department give any considerable amount of information applying to various places in a good serviceable form. What is wanted is,—Number of school places at ; superficial feet per child in school and class rooms; cost of the buildings and appliances complete, including site, for such a number; ditto, without fittings and site. AN INQUIRER.

Tabary's Metallic Cement.—We have received from Messrs. Dreyfus & Co. a specimen of this material, which is intended as an artificial stone impervious to weather. According to the description of the patentees, "it is composed of a stone of trachytite origin, reduced to powder, according to the grain of the stone which has to be reproduced, and the molecules are reunited by an acid and softened without being decomposed. The cement is mixed with the acid and the stone re-constituted to its original condition. It can be used perfectly in any weather, even in the most severe frost. It is quite impervious to all atmospheric attacks, and can be made to match the colour of any stone." The specimen forwarded to us seems of a very compact texture, and has a hard metallic ring, which promises well.

PROVINCIAL NEWS.

Liverpool.—The *Liverpool Daily Post* says that among the members of the Cathedral Sites Sub-Committee a strong opinion exists in favour of the St. John's Church site. The interviews which have been held with the Finance Committee of the Corporation and the St. James's Cemetery trustees with reference to the proposed acquisition of the cemetery for the purposes of a site have, we understand, revealed insurmountable difficulties in acquiring that site, and the trustees of the cemetery have come to the conclusion that they cannot entertain the proposal. The prevailing opinion, moreover, seems to be that a cathedral, to be of great practical utility, should occupy a more central position than either St. James's Mount or Kensington Fields, and that it ought to be within easy reach of the common centres of the city,—the Exchange and St. George's Hall,—always bearing in mind the fact that a cathedral is a diocesan and not merely a city church, and that the convenience of the whole of the surrounding towns and suburbs has to be consulted.

Bradford.—The umpire, Mr. Sturge, in the recent arbitration as to the price to be paid by the Midland Railway Company for property at the bottom of Kirkgate, Bradford, has given his decision. The property consists of two shops,—a fishmonger's and a chemist's,—and on behalf of the owners a claim for 6,608*l.* was made, and the railway company (who require it for the purposes of the new station) offered 3,740*l.* The award is for the sum of 4,800*l.*

Leyland.—An important stage has now been reached in the progress of the new waterworks for the Leyland Local Board,—at the pumping-station, Claughton Green, near Chorley,—in the completion of the heading from the main well to the borehole, and in connecting same to the borehole, thus enabling the water to flow from the borehole into the main well. The borehole is 14 in. in diameter, and the water in it stands constantly at 20 ft. from the surface, the heading from the main well to it being driven through a mixed strata at a depth of 70 ft. below the surface. It therefore required great care and special management in order to effect a satisfactory connexion with the bore-hole. The contractor (Mr. Ebenezer Timmins, of Runcorn) has had two powerful pumps at work for a considerable time, one pump being fixed down the bore-hole, and the other in the main well. These pumps, however, were found at a late stage of the work to be quite inadequate in keeping down the water, and a fortnight ago it was considered necessary to bring into use, in addition, the two new permanent pumps belonging to the local board. There is every reason for believing, from the severe test which has just been made in pumping, and also previously, that an abundant yield of water has been obtained. Mr. Wrennall, the engineer, went down to finally inspect the connexion after completion. Mr. Joseph Clayton, of Soho Foundry, Preston, is the contractor for the new pumping machinery. The whole of the works are now rapidly approaching completion; the large reservoir, built by Mr. William Crook, of Chorley, has been charged and tested, and is now supplying the district with water. The water mains also have been tested, the head of water varying from 150 ft. to 250 ft., and they are nearly 10 miles in length, and not a single leak has been found. The pipes were supplied by the Staveley Iron Company, and the contractor for pipe-laying was Mr. Edward Barber, of Preston.

Edinburgh.—Stevens & Major's patent low-pressure hydraulic multiplying lifts, manufactured by Messrs. Archibald Smith & Stevens, Janus Works, Queen's-road, Battersea, have just been erected at the Scotch Conservative Club, Edinburgh, the new hotel in Prince's-street, Edinburgh, and at the Marquis of Bute's new mansion, Mount Stuart, Rothesay, N.B. The water for driving the two first lifts above mentioned is taken direct from the town mains, in the latter case from the hills at the back of the mansion.

Alfreton.—The committee for the Alfreton district of the Belper Rural Sanitary Authority has had before it a report, prepared by Mr. Edward Pritchard, C.E., on the question as to the construction of a sewage scheme to embrace the entire neighbourhood. Mr. Pritchard is of opinion that from 8,500*l.* to 9,000*l.* will cover the cost of such works as he proposes, excepting the purchase of land or the right of easement.

Lancaster.—The Palatine Hall has been re-opened, after reconstruction from the designs and under the direction of Mr. Geo. D. Oliver, of Carlisle. The builder's work was executed by Mr. Lancaster, the joiner's work by Mr. Jno. Greene, the painting by Mr. Meadowcroft, the slating and plastering by Messrs. Hall & Son, and the plumber and glazier's work by Mr. Abbot, all of Lancaster. The gasfittings were supplied by Messrs. Richardson, Ellson, & Co., of Coventry; and the ironwork by the Phœnix Foundry Company, Lancaster, and Messrs. Macfarlane, of Glasgow.

Tiverton.—The new Volunteer Drill-hall here has been opened. The site has a good frontage on Newport-street, running back to a depth of 190 ft. The plans, prepared by Mr. Mitchell, of Southampton, include a drill-hall, armoury, and dwelling-house for the sergeant-instructor. The tender of Messrs. Manning & Deering, of Tiverton, amounting to 1,572*l.*, was accepted for the construction of the buildings. Additions subsequently made to the original designs will increase the cost to 2,000*l.*, making the total outlay (including site) about 3,000*l.* The hall is 80 ft. by 50 ft., by 40 ft. high to the apex of the roof. The ceiling is match-boarded and varnished, and the large principals which support the roof (tied with iron bars) are partly visible, and fixed into the side walls, and supported by Portland stone corbels. The walls are of Westleigh stone, pointed externally, and plastered on the inside. When used for public meetings, concerts, &c., the hall will seat 1,250 persons.

Cambridge.—The memorial stone of a Good Templars' Mission Hall in Victoria-street, Cambridge, has been laid. The cost of the building will be from 300*l.* to 400*l.* It will be in the Gothic style, built of red Suffolk brick, with Bath stone dressings, traceried windows, and open-timbered roof, covered with slate. Mr. Henry George Bishop, Cambridge, is the architect, and Messrs. Kerridge and Shaw are the builders.

CHURCH BUILDING NEWS.

Warwick.—On the 3rd inst. a meeting of parishioners and others was held in the vestry of St. Mary's Church, Warwick, to receive a report from the Church Council and to take such steps as might be necessary in reference to the restoration of the edifice. The Vicar (the Rev. A. C. Irvine) remarked that evidences of decay were to be too plainly seen in the outward portions of the structure, and it was at the request of the Church Council that he communicated at length with the eminent architect, Mr. Butterfield. After considerable discussion it was resolved:—"That Mr. Butterfield's scheme, as modified, excluding alterations to the chancel and chancel arch, but including the alteration of the seats against the north and south walls, the repairing and warming of the interior, be adopted, it being understood that, with the exception of the alteration of the pews in the south aisles and the warming of the church the exterior repairs shall be first completed."

St. Helens.—The parish of St. Helens is being provided with a new church, which will be dedicated to St. Mark, and which will supply a long felt want in a parish containing the large population of 19,000 souls. Mr. James Gandy is the architect for the structure, which will cost 4,980*l.* and contain 700 sittings. Colonel Gamble, J.P., has presented the site.

Exeter.—A handsome memorial pulpit has just been erected in St. Michael and All Angels' Church, Exeter. It has been placed on the south side, immediately west of the central lantern, and is larger than the usual run of pulpits. Octagonal in plan, it is made wholly of well-seasoned English oak grown in the New Forest, and is in the Early English style of architecture, the type of work, indeed, being similar to the detail seen in Salisbury Cathedral. There is an intersected square base, from which rise twelve columns, connected together by cusped arches. These carry the cornice, enriched by characteristic ball-flower ornaments, upon which rests the pulpit proper. This is panelled in its lower parts, and bursts into rich pierced arcading above, each cant forming a triple opening. The cornice is carved and embattled, and there is a good deal of quiet, unobtrusive carved ornament scattered about the pulpit generally. At every angle are panelled buttresses, and the interior is approached by an easy flight of four steps, supported by handsome newels. This addition to the church is the gift of Mr. Gibbs, of Tyntesfield, near Bristol, and is a memorial of her late husband, the munificent founder of St. Michael's. It has been especially designed by Mr. Arthur W. Blomfield, M.A., architect, of Montagu-square, and the work has been carefully carried out by Mr. Harry Hems, of Exeter.

Port St. Mary (Isle of Man).—St. Mary's Church, at Port St. Mary, in the parish of Rushen, has lately been consecrated. The church, which seats 300 persons, has cost about 1,500*l.*, and has been erected from the designs of Messrs. T. D. Barry & Son, architects, Liverpool, Mr. Flaxney Stowell, being the contractor.

STAINED GLASS.

Newbury.—A window to commemorate the celebrated "Jack of Newbury" has been dedicated in St. Nicholas Church, Newbury, and is to be known as the Winchcombe Memorial Window. "Jack," whose correct name was John Smalwode, and whose native place was Winchcombe, in Gloucestershire, built the chief part of the church about *temp.* Henry VIII. The window is by Messrs. Hardman & Co., of Birmingham and London.

Old Cumnock (Galloway).—The two figures which the Marquess of Bute some time since commissioned Mr. N. Westlake to paint, have been completed and fixed. One represents the Madonna and Child, the other St. John. The Madonna is standing, holding above her the Infant Saviour. St. John is represented as described by Saint Gertrude, officiating as deacon in the heavenly Mass.

BUILDING PATENT RECORD.*

APPLICATIONS FOR LETTERS PATENT.

Feb. 29.—4,124, J. Hartill, Dudley, Drying Walls.—4,128, C. Hill, Heywood, and G. H. Wilkes, West Bromwich, Gulley-trap.—4,147, J. J. Day and T. J. Day, London, Flushing Water-closets, &c.—4,164, H. Tosh, Glasgow, and S. Preston, Barrhead, Window-sashes, &c.

March 1.—4,176, W. R. Cornell, Grays, Concrete for Building, &c.—4,203, T. G. Dorning, Manchester, Chimney-cowls.—4,218, T. Smith and J. Drewitt, London, Fastenings for Window-sashes, &c.—4,231, H. N. Crellin, Richmond, Fittings for Water-closet Doors, &c.

March 3.—4,247, E. Potts, Oldham, Fireproof Construction.—4,257, E. G. Wright, Portsmouth, Prevention of Smoky Chimneys.—4,277, J. Smith, Leeds, Fire-grates or Stoves.—4,278, W. Telfer, Kinning Park, Cooking-ranges.—4,286, F. J. Candy, Fen Ditton, Lavatories and Closets.

March 4.—4,305, A. Emanuel, London, Water-closet.—4,320, J. Whiteley, Salford, Mats, Treads of Staircases, &c.—4,347, G. Pelling, London, Window-sashes.—4,354. W. Watson, London, Sash-fasteners.—4,360, J. D. Mackenzie and W. Atchinson, London, Glazing Roofs, &c.—4,374, E. Edwards, London, Metal Roofs. Com. by A. A. J. Menant and P. H. J. Menant, Paris.

March 5.—4,403, T. Welton, London, Deodorising Fœcal Matters, &c., in Water-closets, [&c.—4,405, G. C. Warden, Tynemouth, and J. Ferguson, Edinburgh, Sash-bars and Astragals.—4,418, T. Penn, London, Preventing Waste of Water.

March 6.—4,438, J. Miller, Glasgow, Ventilating Syphon-traps for Drains, &c.—4,441, W. G. de F. Garland, East Molesey, Fences.

SPECIFICATIONS ACCEPTED.†

March 4.—105, J. Robson, London, Weathering Parapet Walls, &c.—1,807, J. Partridge, London, Window-blind Fittings.

March 7.—2,446, J. Badger, New York, U.S.A., Window Ventilators.—2,496, R. Crosthwaite, London, Fire-grates or Stoves.—2,601, H. O. A. E. Gruenbaum, London, Ventilation and Purification of Vitiated Air in Dwellings, &c.

NOTICES TO PROCEED

Have been given on the Dates first named.

March 4.—5,167, E. E. Allen, London, Construction of Portable Buildings (Oct 31, '83).—5,211, G. W. von Nawrocki, Berlin, Floors, Thresholds, Steps, &c. Com. by F. Arnecke & Co., Blankenburg, Germany. (Nov. 2, '83).—5,385, W. Walker, Birkenhead, Exhaust Ventilators (Nov. 15, '83).

ABRIDGMENTS OF SPECIFICATIONS

Published during the week ending March 8, 1884.

2,303, S. C. Overton, London, Producing Mural, Ceiling, and other Architectural Decorations (May 7, '83, price 4d.).

A composition is made of paper or wood pulp, asbestos powder, and selenitic cement, which is pressed into the shape required.

3,344, A. J. Boult, London, Ventilating Casements. Com. by MM. Bouquet & Bulle, Besançon, France (July 5, '83, 2d.).

These casements have rows of movable flaps or strips of glass. (*Pro. Pro.*)

* Compiled by Hart & Co., Patent Agents, 186, Fleet-street.

† Open to public inspection for two months from the dates named.

3,366, W. R. Lake, London, Door-locks. Com. by E. A. Chameroy, Paris (July 6, '83, 2d.).

This relates to supplying cheap common locks, with movable wards to render them more secure. (*Pro. Pro.*)

3,469, H. J. Haddan, London, Cord-fastener for Window-blinds, &c. Com. by D. W. Ernsting, Bremen (July 13, '83, 4d.).

The cord is passed between two levers pivoted on a bracket, and when this cord is pulled sideways these levers grip the cord.

3,488, J. Fairbairn, Edinburgh, Water-closets (July 16, '83, 6d.).

The basin of the closet has a syphon-trap or water-seal, and another is fitted to the discharge-pipe below; but air-pipes are fitted to each trap to prevent syphonic action. The discharge-pipe from the cistern is also trapped.

3,512, E. Gilbert and A. E. Gilbert, Dundee, Water-closets (July 17, '83, 6d.).

The basin may be made in any manner, but the seat, which is quite separate therefrom, is made in the form of a horseshoe and is hinged to the wall, &c., at the back.

3,555, C. J. Marson, London, Slabs for Building or Decorative Purposes (July 19, '83, 2d.).

These are made of plaster, Portland cement, siliceous sand, and borax, which, when mixed together, are moulded into the shape required. (*Pro. Pro.*)

3,614, J. Heinemann, Hanover, Artificial Marble. Com. by H. Rollic, Hanover (July 23, '83, 4d.).

This is made of gypsum, which is first heated and then treated with solutions of chloride of calcium and sulphate of magnesia.

MEETINGS.

SATURDAY, MARCH 15.

Royal Institution.—Captain Abney, R.E., F.R.S., on "Photographic Action Considered as the Work of Radiation." (III.) 3 p.m.

MONDAY, MARCH 17.

Society of Arts.—Professor W. Chandler Roberts, F.R.S., on "The Alloys used for Coinage." (Cantor Lecture). 8 p.m.

TUESDAY, MARCH 18.

Institution of Civil Engineers.—Mr. James A. Longridge, M.Inst.C.E., on "Wire-gun Construction." 8 p.m.

St. Paul's Ecclesiological Society.—Mr. W. de Gray Birch on "Seals, with reference to those of some Bishops of London." 7.30 p.m.

Society of Arts (*Foreign and Colonial Section*).—Mr. B. Francis Cobb on "Borneo." 8 p.m.

WEDNESDAY, MARCH 19.

British Archæological Association.—Mr. Thos. Morgan, F.S.A., on "The Evidences and Theories relative to Cæsar's Landing-place." 8 p.m.

Royal Meteorological Society.—Mr. Robe t H. Scott, F.R.S., on "The History of Thermometers." 7 p.m.

THURSDAY, MARCH 20.

Society of Antiquaries.—(1) The Rev. Canon Pownall, F.S.A., on "A Reliquary of Limoges Enamel (thirteenth century)." (2) Mr. A. J. Evans, F.S.A., on "Researches in Illyricum: Socepi and the Birthplace of Justinian." 8.30 p.m.

Institution of Civil Engineers (*Special Meeting*).—Mr. A. C. Kirk, M.Inst.C.E., on "Compressed Air and other Refrigerating Machinery." 8 p.m.

Society of Engineers.—Mr. J. W. Wilson, jun., on "Open Pier Construction." 7.30 p.m.

Royal Institution.—Professor Tyndall on "The Older Electricity: its Phenomena and Investigators." (IV.) 3 p.m.

FRIDAY, MARCH 21.

Royal Institution.—Mr. Walter Besant on "The Art of Fiction." 9 p.m.

SATURDAY, MARCH 22.

Architectural Association.—Visit to the Scottish National Church, Pont-street, Belgravia. 3 p.m.

Miscellanea.

General Engineering Construction.—The fourth of a course of lectures on "General Engineering Construction," by Mr. J. W. Wilson, Principal of the Crystal Palace School of Practical Engineering, was delivered on the evening of March 6th, in the reading-room of the Society of Engineers, Victoria-street, Westminster, Mr. Charles Horsley, past-president, in the chair. The lecturer commenced by considering the nature and position of prime movers, of travellers and lifting gear, shafting and couplings, &c. He then spoke of the different processes of setting out work, and the various appliances connected therewith, and went on to describe the different kinds of machine tools, lathes, &c., showing how they have been improved in construction from time to time. After that, he directed the attention of his audience to the general process of preparing wrought-ironwork, and to the different forms of apparatus in use for that purpose, including the various kinds of hammers and the arrangement of forges. The lecturer concluded with a special reference to some of the large work carried out in forges in the present day. The lecture was illustrated by numerous models and diagrams.

Grecian Art and the Olympian Games.—On this subject Mr. W. Cave Thomas is to read a paper before the Cymmrodorion Society next week.

Finchley Sewerage.—The Finchley Local Board, being impressed with the necessity of sewering their district, the ditches and streams of which are now polluted by sewage, in April, 1883, instructed their engineer and surveyor, Mr. George W. Brumell, C.E., to prepare a sewerage scheme for their district, the sewage to be disposed of by filtration on twenty-eight acres of land at Colney Hatch. The scheme prepared is estimated to cost 46,000*l*., exclusive of land. The Finchley Board, having considered this scheme, and adopted it, petitioned the Local Government Board for a provisional order to take lands by compulsory powers for the erection of pumping stations, and also for permission to borrow 14,500*l*. to purchase land by agreement. Mr. S. J. Smith, Local Government Inspector has been holding an inquiry (which has already extended over four days) into the merits of the undertaking. Evidence upon the scheme has been given by Mr. Brumell. Mr. H. Law, C.E. (who had been consulted by the Finchley Board) gave evidence in support of the application, and said that the fears of the opposition as to any nuisance being caused by the pumping-station adjoining Hendon were groundless and purely sentimental. He had had his office in a large pumping station at Pernambuco, Brazil, and there was no smell, no noise, and no nuisance whatever; he also described the Western Pumping Station of the Metropolitan Board of Works at Pimlico, and stated that the general impression in the neighbourhood is that it is a pumping-station for waterworks (!). No complaints had ever been received. With proper management there need not be the slightest apprehension of any nuisance at the proposed pumping-station adjoining Hendon, especially as gas engines were to be used. The inquiry was ultimately adjourned to the 18th inst. when the Hendon Local Board and some Hendon ratepayers intend by counsel to open the case of the opposition.

The Ruthven Collection of Greek Antiquities, Edinburgh.—The National Museum of Antiquities in the Royal Institution, Edinburgh, has lately received as a gift from Lady Ruthven an extensive and valuable collection of Greek antiquities which has long been preserved at Winton Castle. The collection consists chiefly of Greek vases, terra-cottas, lamps, bronzes, and coins. The bronzes include a number of mirrors of early Greek type, and a considerable variety of small statuettes and figures of animals from Greece and Italy, with portions of several specimens of large sepulchral vases of bronze of archaic character. The terra-cottas are, for the most part, archaic in type, including a number of painted figures of horses and other animals, presenting a suggestive resemblance to some of those recovered from the excavations at Mycenæ and the ruins in the Troad by Dr. Schliemann. The vases, which form the largest portion of the collection, are about 500 in number, some being of large size, and many of great beauty and rarity. This typical series of painted vases is described by the *Scotsman* as being second in importance and interest only to that of the British Museum itself.

Royal Commission on the Housing of the Working Classes.—The Royal Commission on the Housing of the Working Classes held their first meeting for the examination of witnesses on Tuesday at 8, Richmond-terrace, Whitehall. Present:—Sir Charles Dilke, M.P. (chairman), the Prince of Wales, Cardinal Manning, the Marquis of Salisbury, Lord Brownlow, Lord Carrington, Mr. Goschen, M.P., Sir R. A. Cross, M.P., the Bishop of Bedford, the Hon. E. L. Stanley, M.P., Mr. Torrens, M.P., Mr. Broadhurst, M.P., Mr. Collings, M.P., Mr. Godwin, F.R.S., Mr. S. Morley, M.P., and Mr. J. E. C. Bodley, secretary. It was resolved, after some discussion, to hold the sittings in private. Evidence was given by Lord Shaftesbury and Mr. Hugh Owen, permanent secretary to the Local Government Board, and after a sitting of several hours the Commission adjourned until Friday.

The Parkes Museum.—Among the members elected at the last meeting of the Council of the Parkes Museum were Sir William Bowman, bart., F.R.S.; the Hon. Sir John Rose, bart., G.C.M.G.; Sir Henry B. Loch, K.C.B.; Sir Frederick Abel, C.B.; Mr. J. Bonham Carter, Surgeon-General James Mouat, V.C., C.B.; Professor H. E. Armstrong, F.R.S.; Major H. B. Hamilton; Dr. S. O. Habershon; Mr. W. Emerson, F.R.I.B.A.; Mr. J. Cooper Forster, F.R.C.S.; Stephen Salter, F.R.I.B.A.; Dr. John Williams; Mr. Morrant Baker, F.R.C.S.; Mr. Thomas Bryant, F.R.C.S.

Building Land in Whitecross-street and Shoreditch.—Messrs. Walker & Runtz recently submitted for sale at the Auction Mart, a number of extensive freehold building sites in the localities of Whitecross-street and Shoreditch. The sale took place by direction of the Metropolitan Board of Works, the particulars stating that the lands comprised in the several lots had been acquired by the Board under the powers conferred upon them by the Artisans' and Labourers' Dwellings Improvement Acts, but that the lots now submitted were those portions acquired by the Board which were not, under the terms of the Acts, required to be laid into any street, or devoted to the erection of dwellings for the working classes. The property first submitted consisted of the sites in the neighbourhood of Whitecross-street, containing nine lots. A plot at the corner of Bunhill-row and Dufferin-street, containing 2,213 square feet, was sold for 3,320*l*. The next lot offered, situated near Bunhill-row, contained an area of 7,523 ft., having a frontage to Dufferin-street of 95 ft., to Errol-street of 66 ft., with an average depth of about 75 ft. For this lot there was close and spirited competition, the first offer being 4,000*l*., the subsequent biddings quickly bringing the property up to 8,000*l*., at which it was withdrawn. With the exception of one small lot, the remaining lots were all sold, after an animated competition for each, the total proceeds of the several lots sold amounting to 22,790*l*. The Shoreditch property, consisting of five lots, was next offered, and all readily sold at the following prices:—High-street, a freehold building site, area 3,600 ft., 3,510*l*.; another site, area, 1,848 ft., 2,440*l*.; an adjoining site, area 1,507 ft., 1,750*l*.; another adjoining site, area 6,627 ft., 4,560*l*.; and a site in Great Eastern-street, area 5,693 ft., 6,200*l*.; total for the five sites 18,460*l*. Thus the aggregate proceeds of the day's sale amounted to 41,250*l*.

The Recreation and Health Society, Brighton.—The first annual report of this society, adopted at the meeting held the other day, puts on record a great deal of useful work in the way of "uniting and organising voluntary efforts for the improvement of the moral and physical condition of the people." The sanitary sub-committee seem to have given a great deal of time and attention to the condition of many of the poorer districts of the town, and have personally inspected, and reported upon some of them to the town council. The committee believe that by thus co-operating with the sanitary authorities, good has been done, and the hands of the town officials have been strengthened in bringing pressure to bear upon negligent owners of property. A special series of questions for the use of district visitors has been prepared, by which they should be able to ascertain the existence of any serious sanitary defect in houses they visit; these are in process of circulation. The work done by the decoration sub-committee has been of an unpretentious character. For the sake of colour, the walls of the St. Mary's schoolroom in Mount-street, in the poor neighbourhood of Edward-street, have been brightened by a border above the wooden dado, formed by the coloured plates from several of Randolph Caldecott's picture-books, mounted upon artist's cloth, and with an ornamental border painted round each set. A number of coloured prints and good steel engravings, kindly given to the society by Mr. G. W. Ryde, have been distributed.

Knighton Workhouse, Radnorshire.—The Guardians having advertised in the *Builder* for designs for a new stone-built workhouse for 120 inmates, received nine designs in answer to it. They met on the 28th ult., and selected the plans of Messrs. Jones & Parke, Newtown, Montgomeryshire, and commissioned them to carry out the work. The second premium of 10*l*. was awarded to Messrs. Blessley & Aspinal, Cardiff. The conditions stipulated that two blocks of the old workhouse should be worked in with the new. The site is a narrow strip running north and south, and falls about 36 ft. from south to north, so that it is rather an awkward site to deal with. The adopted plan resembles the letter H, with the men and women on the sides, the administrative offices in the centre, the dining-room projecting from the centre at the back, with the kitchen and other offices running across at the end of the dining-room. Taking advantage of the fall in the ground, tramp wards can be formed under the centre and wings if desired. The cost will be about 5,000*l*.

New Reservoir at Stroud.—The new reservoir at Stroud has been completed. The Board have constructed the reservoir with their own workmen, without the aid of a contractor. The site of the reservoir was an old quarry, and the labour of forming and clearing the floor to the required level was a work of considerable difficulty, the total quantity of rock and *débris* requiring to be moved being about 14,000 tons. The side walls and floor of the reservoir have been constructed entirely of concrete, and the roof, which consists of brick and concrete arches carried on iron girders, is supported by seventy-three brick pillars. The whole of the floor and side walls have been finished with cement rendering 1½ in. in thickness. The capacity of the reservoir is about 2,100,000 gallons, and the cost amounts to 1*l.* 15*s.* per 1,000 gallons, the area being about half an acre. The materials used in the construction of the reservoir have been supplied by the following manufacturers and tradesmen:—Cement: Mr. T. P. Powell, Wareham, Isle of Purbeck, and Messrs. Gibbs & Co., Greys, Essex. Lias lime: Messrs. J. Davies & Co., Aberthaw Lime Works, Lliswerry; Messrs. Greaves, Bull, & Lakin, Stockton, Warwick; Mr. F. Bromwich, Keysham. Bricks: Messrs. H. & A. Pearce, Dudbridge; Mr. W. W. H. Harper, Stroud; Mr. Wood, Stroud; Messrs. Butt & Son, Stroud. Constructional ironwork: Messrs. Rowanson, Drew, & Co., London; Messrs. Chew & Sons, Stroud; Messrs. M. T. Shaw & Co., London; Messrs. Hill & Sons, Stroud; Mr. F. G. Gill, Stroud. Valves and fittings: Messrs. J. Stone & Co., Deptford. Iron pipes: Messrs. J. & S. Roberts, Swan Village. The cement plastering has been done by Mr. H. Beavis, Stroud. The work has been executed from the plans and under the superintendence of Mr. Lofthouse, C.E., the Town Surveyor and Water Engineer.

Shepton Mallet.—At a meeting of the Local Board of Health, on Wednesday, the 5th "the Medical Officer stated that up to the previous day the company's water had been in a drinkable condition, but on Tuesday and Wednesday he found the water to be in turbid condition. He had not tested the water, but he believed it to be pure, except when contaminated by surface water. Mr. Hickes thought that the Board should have the water analysed. The Chairman: It is suggested that a communication should go to the water company, asking them to do so. Mr. Hickes: I like that. That's letting the company be their own judges. Mr. Allen: How can that be? We should not make the water ourselves. Mr. Norton said there were some pipes broken, and in consequence of the heavy rains it had been impossible to complete the work. Some time ago a complaint was made by Mr. Herring, and upon the water being analysed it was found to be pure, with the exception of the discolouring matter which got into the water in consequence of some pipes being broken. The Chairman: The question is, whether the discolouring matter contains anything injurious to health. Mr. Luff moved that the Clerk should write to the water company, asking them to have the water tested by the public analyist." It appears that the engineer under whom the work alluded to was carried out has accepted little more than one-fourth of his original charges, in full settlement: so we hope that, as war correspondents say, "tranquility is restored."

British Archæological Association.—The seventh meeting of the session was held on the 5th inst., the chair being occupied by Mr. Thomas Morgan, F.S.A. Mr. Roach Smith, F.S.A., reported the discovery of a Saxon cemetery in Dartford parish, not far from the new building of the Asylums Board. One interment has been met with, supposed to be that of a warrior, since the iron umbo of a shield and a javelin head were found. Mr. Loftus Brock, F.S.A., exhibited a funeral chaplet of very thin gold, found in the grave of a Greek lady in the Troad, similar but later in date to those discovered by Dr. Schliemann. Mr. Mac Intyre North described several articles of Celtic art figured in his recent work, and the chairman referred to some recent discoveries on the site of the Colossus of Rhodes, and stated that some of the massive foundations are still extant. A paper was then read by Mr. W. de Gray Birch, F.S.A., in the absence of its author, Mr. H. Syer Cuming, F.S.A. Scot., on "Finger-nail Lore." The paper was illustrated by extracts from a large number of old authors.

The New Assize Courts in Shrewsbury. The Shropshire Winter Assizes were held last month in the new Assize Courts at Shrewsbury, recently completed, at a cost of about 25,000*l.*, from the designs of Mr. Thomas M. Lockwood, architect, Chester. Baron Huddleston, in the course of his charge to the Grand Jury, made a long and complimentary reference to the new courts, saying he thought they might fairly challenge all the other counties in England to produce more commodious or more convenient courts than those in which they were then sitting. A great deal of the public mind had been occupied with the subject of courts of justice, and suggestions of various kinds had been made, directed, he thought, in reference to the arrangements of new courts. There were two things in the arrangement of a court that ought to receive due attention, one being that of proper accommodation for the jury, and the other proper accommodation for the witnesses, which matters had hitherto been too much neglected.

Electrical Engineering.—The final lecture of this series was delivered by Mr. John C. Fell, in the reading-rooms of the Society of Engineers, Westminster Chambers, on Monday evening, March 10th, Mr. Arthur Rigg, president, in the chair. The lecturer concluded this series by an explanation of the nature and action of secondary batteries. He pointed out their most valuable functions for the regulation and storage of the electrical current in any case of electric-light installation, the steady supply of a uniform current being thereby insured, and the danger of sudden darkness from the stoppage of the generator thereby obviated. Mr. Fell concluded with an account of some novel results in thermo-electricity.

The Royal Commission on Dwellings. It will not fail to be noted as a significant fact that no medical man has been placed on the Royal Commission appointed to investigate the condition of the dwellings of the poor. Mr. George Godwin, the architect, represents the building profession; but it has not been deemed necessary that the profession of medicine, or health-preservation, should be represented, although the prevention of disease is one of the crying needs of the evil to be investigated.—*Lancet.*

TENDERS.

For enlargement of school at Webb-street, Southwark, for the School Board for London. Mr. E. R. Robson, architect:—

Faulkner	£4,313 0 0
Wood	4,193 0 0
Hart	4,072 0 0
Staines	3,998 0 0
Johnson	3,826 0 0
Tongue	3,803 0 0
Patman & Fotheringham	3,789 0 0
Kirk & Randall	3,750 0 0
Brass	3,735 0 0
Bangs	3,730 0 0
Turtle	3,726 0 0
Niblett	3,718 0 0
Smith	3,707 0 0
Shurmur	3,694 0 0
Jerrard	3,690 0 0
Holloway	3,677 0 0
Atherton & Latta	3,650 0 0
Scrivener	3,644 0 0
Lathey Bros.	3,634 0 0
Grover	3,626 0 0
Jackson	3,620 0 0
Downs	3,620 0 0
Shepherd	3,595 0 0
Wall Bros.	3,587 0 0
Stimpson	3,480 0 0
Howell & Son	3,462 0 0

For sewering, levelling, kerbing, metalling, constructing manholes and lampholes, and making a road on an estate at Walthamstow, Essex, for Mr. Charles Raikes. Mr. Francis W. Searle, surveyor, Tottenham:—

P. G. Pound	£1,395 0 0
C. Killingback	1,320 0 0
C. Taylor	1,190 0 0
J. E. Bloomfield	1,122 0 0
H. Potter	1,049 0 0
W. Porter	993 0 0

For six cottages for Mr. Appleton, Solsbury, Essex. Mr. W. F. Goody, architect:—

Cockett	£897 0 0
Rudrum	889 0 0
Dupont	878 0 0
Bowls	865 0 0
Harden	841 0 0
Dobson	792 0 0
Chambers	769 0 0
Oldridge, Colchester (accepted)	764 10 0

For the erection of residence, Addison-gardens, Kensington, W., for Mr. Thos. H. Ellis. Mr. Thos. S. Stephens, architect (Messrs. Graham & Co., 67, Strand, W.C.):—

	Building.	Decoration.
Ellis & Turner (accepted)	£1,100 0	£150 0

For a new aisle and other extensions to St. Botolph's Church, Lincoln. Mr. Wm. Watkins, architect. Quantities supplied:—

Hampshire	£654 0 0
Martin & Sims	636 0 0
Footet	589 10 0
Baines	564 0 0
Crosby & Sons (accepted conditionally)	549 0 0

Accepted for proposed billiard-room at The Limes, Newbury, Berkshire, for Mr. J. Cockburn Pinniger. Mr. James H. Money, architect, The Broadway, Newbury. Quantities supplied by Messrs. Curtis & Sons:—

Adey (general work)	£445 0 0
Pound (mason)	115 0 0
Bryer & Co. (plumbing, painting, &c.)	75 0 0

For alterations and additions to the Croft, Lyttongrove, Putney Hill, Surrey, for the Hon. Baron C. E. Pollock. Messrs. Lee Bros. & Pain, architects, 8, Adelphi-terrace. Quantities supplied:—

H. Bishop	£1,295 0 0
S. W. Aries (accepted)	1,252 0 0

For constructing roads and sewers upon the estate of Mr. R. J. Pettiward, at Putney. Messrs. Lee Bros. & Pain, surveyors. Quantities supplied:—

S. W. Aries	£6,832 0 0
J. Neal	5,656 0 0
F. Blackmore	5,485 0 0
R. Aviss & Co. (accepted)	5,444 0 0

For the erection of detached dwelling-house and stabling for six horses at West Ham, for Mr. Wm. Laver:—

	House.	Stables.
Cheffins	£670!	£213
Hosking	639	148
Brown & Roberts	325!	148

For the erection of vicarage and stables at Felinfoel, near Llanelly. Mr. J. Buckley Wilson, architect, 15, Castle-street, Swansea. No quantities supplied:—

J. Davies, Llanelly	£2,200 0 0
Bassett, Davies, & Hopkins, Llanelly	2,102 0 0
D. Peregrine, Felinfoel	2,100 13 0
Brown, Thomas, & Johns, Llanelly	2,099 0 0
Thomas, Watkins, & Jenkins, Swansea	2,000 0 0
G. Mercer, Llanelly	1,978 0 0
J. Thomas, Llanelly	1,970 0 0

For alterations to Board school, Wollaston. Mr. E. Sharman, architect:—

E. Brown, Wollaston	£498 0 0
R. Marriott, Wellingborough	490 0 0
Clayson & Sharman, Cogenhoe	467 10 0
G. Henson, Wellingborough	438 0 0
Coopers, Wollaston	434 0 0
J. Underwood, Wellingborough	433 0 0

For pulling down and erecting new premises, 3 and 4, George-yard, Bow-lane, for Mr. Mock. Mr. F. I. Chambers, architect. Quantities not supplied:—

Lidstone & Son	£825 0 0
D. D. & A. Brown	799 0 0
Mattock Bros.	627 0 0

For erecting new depôt for Messrs. Carter, Patterson, & Co., at Dyne-road, Kilburn Rise. Mr. W. Eve, architect. Quantities supplied:—

Roe	£4,394 0 0
Harris & Wardrop	4,246 0 0
D. D. & A. Brown	4,145 0 0
Downs	4,143 0 0
Nile	4,108 0 0
Hicks	3,940 0 0
Rogers	3,157 0 0

For gasfitters' work at Finsbury Park Congregational Church. Messrs. Searle & Searle, architects, 4, Bloomsbury-place, W.C.:—

	Brass Fittings.	Iron and Brass.
Biggs	—	£201 0 0
Vaughan & Brown	£213 8 3	158 0 0
Jones & Willis *	149 10 6	129 10 6

* Accepted.

For alterations and additions at Castle Bar, Hill-road, Ealing, for the Messrs. Riley. Mr. J. Wallace Peggs, architect, 21, Queen Anne's Gate, Westminster:—

D. D. & A. Brown (accepted)	£550 0 0

[No competition.]

For new stable and offices at "Wolverton," Beckenham, for Dr. Walker, 22, Grosvenor-street, Grosvenor-square:—

D. D. & A. Brown (accepted)	£560 0 0

[No competition.]

For carrying out shop-fronts at Nos. 40, 42, and 44, Southampton-street, Camberwell, for Mr. R. Flather, West Kent Lodge, Bexley Heath, Kent:—

D. D. & A. Brown (accepted)	£250 0 0

[No competition.]

For the erection of new warehouses in Peascod-street, Windsor, for Mr. J. Radnor:—

W. P. Reavell (accepted)	£700 0 0

[No competition.]

For the rebuilding of the London Luncheon Bar, Peascod-street, Windsor, for Messrs. Nicholson & Sons. Mr. Charles Vardy, architect, Maidenhead, Berks:—

Silver, Sons, & Tilewood, Maidenhead	£858 0 0
Woodbridge, Maidenhead	650 0 0
Hollis, Windsor	633 0 0
W. P. Reavell, Windsor (accepted)	573 0 0

For pair of houses in Frances-road, Windsor:—

W. P. Reavell (accepted)	£1,100 0 0

[No competition.]

For alterations and additions to premises, Thames-street, Windsor, for Messrs. Burge & Co., Windsor. Mr. A. A. Hudson, architect, Southsea:—

W. P. Reavell (accepted)	£250 0 0

[No competition.]

For new school-rooms at the Baptist Chapel, Victoria-street, Windsor, for Building Committee:—

Kelly, Windsor	£395 0 0
Hollis, Windsor	348 0 0
W. P. Reavell, Windsor (accepted)	316 0 0

For the completion of West Kensington Congregational Church. Mr. James Cubitt, architect. Quantities supplied:—

Bray & Pope	£7,614	0	0
Nightingale	5,940	0	0
Rider & Son	5,888	0	0
Shurmur	5 760	0	0
Kearley	5,697	0	0
Staines & Son	5,384	0	0
F. Higgs	5,000	0	0
J. O. Richardson	4,910	0	0
F. Smith	4,867	0	0
Larden & Son	4,790	0	0
D. D. & A. Brown	4,615	0	0
Howell & Son	4,516	0	0

For the erection of lawn tennis pavilion for the directors of the Chiswick Lawn-Tennis Club:—

		Without Basement.
Nightingale	£1,676	£1,284
Hunt	1,418	1,083
Adamson	1,365	1,045
Roome	1,261	993
Whitman	1,093	882

Accepted for the erection of dwelling-house and shop premises in Church-street, Camberwell, for Mr. W. H. Cooper. Mr. Robert P. Whellock, architect, Camberwell:—

W. P. Reavell, Windsor	£1,070	10	0

For the erection of packing and cart sheds, and reinstating cottages, after fire, at Nightingale Hall Farm, Lower Edmonton. Mr. J. S. Gomme, surveyor, 99, Strand:—

Sims, Richmond	£1,372	0	0
Kent, Edmonton (too late)	1,179	0	0
Bentley, Waltham Abbey	1,134	0	0
Field & Son, Enfield	1,100	0	0
Gardener, Waltham Abbey	988	0	0
Nye, Ealing (accepted)	919	0	0

[Surveyor's estimate, 1,089*l.*]

For the erection of three additional houses at the School, Banstead, Surrey, for the Managers of the Kensington and Chelsea School District. Messrs. A. & C. Harston, architects, 15, Leadenhall-street. Quantities supplied:—

Loe & Son	£5,192	6	0
Munday	4,903	16	6
Burman & Son	4,697	0	0
Knight	4,694	11	6
White	4,414	9	0
Potter	4,316	16	0
Deacon	4,257	0	0
Hobbs	4,170	0	0
Masters	4,136	0	0
Howell	4,105	0	0
F. Higgs	4,099	0	0
Jas. Longley, Crawley, Sussex *	3,998	0	0

* Accepted.

Accepted for the erection of a Wesleyan Church at South Elmsall. Mr. James Wilson, architect, Leeds. Quantities by the architect:—

Wilson (mason)	£704	13	4
Gelder (joiner)	330	0	0
Rawlins (slater)	82	0	0
Tattersall (plasterer)	56	10	1
Thompson (plumber and painter)	78	0	0
Tankard (hot-water)	30	2	4

For the erection of five cottages, Gold-street, Stepney-green, for Mr. Morris Davies. Mr. Charles A. Legg, architect, Mile End. Quantities by Mr. Hawker:—

Lusk	£1,500	0	0
Palmer & Sons	1,395	0	0
Finch	1,340	0	0
Hawkings	1,289	0	0
Elves	1,270	0	0
Parfitt	1,259	0	0
Calnan	1,215	0	0
Russell	1,202	0	0

For alterations to the Hallsville Tavern, Canning Town. Mr. G. T. Tribe, architect:—

Hughes	£868	0	0
Shurmur	798	0	0
Harris & Wardrop	783	0	0
Walker	766	0	0
Buckall	669	0	0
Maddison	625	0	0

For additional warming at the High-street Board School, Stoke Newington. Mr. E. R. Robson, architect:—

W. Shurmur	£167	0	0
T. Boyce	166	0	0
McCormick & Sons	135	0	0

For alterations, additions, &c., to Shandon-court, Tunbridge Wells, for Major C. R. Fletcher Lutwidge, J.P. Mr. Mervyn E. Macartney, B.A., architect. Quantities by Messrs. Evans & Deacon:—

Shillitoe	£6,977	1	10
Mansfield & Son	6,780	0	0
Ponnett & Son	6,161	0	0
Maides & Harper	6,114	0	0
Jarrett	6,090	0	0
Heath	5,839	0	0
Oakley & Drake	5,652	0	0
Foster & Dickson	5,325	0	0

For alterations to shop for Messrs. Routledge & Co., High-road, Lower Tottenham. Mr. D. Campbell, architect:—

Woodward	£232	0	0
Fairhead	230	0	0
Shurmur	216	0	0

For the erection of a billiard-room at Finchley. Mr. F. W. Littlewood, architect:—

W. Oldrey	£590	0	0
Smith Bros.	532	16	0
Bray & Pope	520	0	0
Mattock Bros.	517	0	0
Stimpson & Co.	490	0	0
Garrud	483	10	0
W. Shurmur	450	0	0
J. W. Dixon	433	0	0

Malvern Assembly Rooms.—In reference to the list of tenders for this work, published a fortnight ago (p. 324), Mr. John Everal writes: "There are a few little inaccuracies which it may perhaps be well to correct, viz.—'Wood & Sons, Malvern,' should be 'Wood & Sons, *Worcester*'; 'Everal & Co., Malvern,' should be '*Everal*' only; and 'Sparkes & Co.' should be 'Sparkes & Son.'" The list was printed as sent to us.

Special Notice.—Lists of tenders frequently reach us too late for insertion. They should be delivered at our office, 46, Catherine-street, Strand, W.C., not later than four p.m. on Thursdays.

TO CORRESPONDENTS.

Rev. W. H. L.—F. R. W.—S. H. (we *cannot* undertake to keep and return rejected MSS., as we have for some time permanently indicated below).—G. & Co. (we are obliged to decline notifying honorary awards at exhibitions, &c., unless the information is sent officially).—A. J. D.—"Duplex Bridge" (unless you send a drawing, we cannot decide whether the subject is worth space).—F. J. C. (shall have attention).—W.—W. L.—W. R. S. H. (sent too late; no space).—A. E. G. (next week).—H. T.—H. J. & Son.—A. & E. A. (should send amount).—T. de C. M. (amounts not sent).—J. G. (too late).

Correspondents should address the Editor, and *not* the Publisher, except in cases of business.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

We are compelled to decline pointing out books and giving addresses.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news-items) which have been duplicated for other journals, are NOT DESIRED.

PUBLISHER'S NOTICES.

THE INDEX and TITLE-PAGE for Volume XLV. (July to December, 1883) were given as a Supplement with the number of January 12, and A COLOURED TITLE-PAGE was issued the following week, in substitution for that published previously.

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And Farleigh Down.
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Is the Best for Use in all Exposed Positions, being a well-known and tried Weather Stone.
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[ADVT.

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Agent, Mr. H. MITCHELL, 5, Augustus-road, Hammersmith, London, W.
[ADVT.

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Asphalte.
Seyssel, Patent Metallic Lava, and White Asphaltes.
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